MATERIAL SAFETY

DATA SHEETS

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 6-09-98
REPLACES: 09-22-92

IDENTIFICATION

PRODUCT NAME: ACID CLEANER NO. 5
COMPOSITION: MIXTURE OF PHOSPHORIC AND NITRIC ACIDS

This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting the statute are:

HAZARDOUS INGREDIENTS:	**%**	**TLV LIMIT IN AIR**
Phosphoric Acid (CAS 7664-38-2)	6	1 mg/m3 (ACGIH)
Nitric Acid (CAS 7697-37-2)	38	2 ppm (ACGIH)

PHYSICAL DATA

APPEARANCE: Dark Blue Liquid
ODOR: Acidic
SOLUBILITY IN WATER: Complete
pH of CONCENTRATE: 1.0
EVAPORATION RATE: 1 (water=1)
BOILING POINT: 220° F.
SPECIFIC GRAVITY: 1.16
VAPOR PRESSURE: 24 mm Hg.

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non - combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic fumes.
EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with soft metals may evolve flammable hydrogen gas. Containers may explode when heated. Contact with chlorine will evolve a chlorine gas.
NFPA Hazard RATING: Health 3; Flammability 0; Reactivity 1

HEALTH HAZARD DATA

- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid any skin or eye contact.
- Do not mix with chlorine containing products as it will cause the release of chlorine gas.
- Do not use on galvanized iron.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure irrigate with saline solution. Get medical attention as soon as possible, especially if redness or irritation develops.
SKIN CONTACT: Flush with cool running water. If irritation develops get medical attention.

INGESTION:	If conscious, drink large amounts of milk or water, followed by Milk of Magnesia, olive oil, or beaten egg whites. Get medical attention immediately. DO NOT induce vomiting.
INHALATION:	Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Atmospheric levels should be maintained below the exposure limits Listed in Hazardous Ingredients by using engineering controls. If not feasible, Use approved full face-piece air-purifying respirator.
VENTILATION SYSTEM:	Provide general and/or local exhaust ventilation to maintain airborne levels below the exposure limits in Hazardous Ingredients. Refer to "Industrial Ventilation" by ACGIH for a manual of recommended practices.
SKIN PROTECTION:	If skin or contamination of clothing is likely, protective clothing should be worn.
EYE PROTECTION:	Chemical goggles are required.
PROTECTIVE GLOVES:	Wear chemical resistant gloves.

REACTIVITY DATA

INCOMPATIBLE MATERIALS:	Alkalis, chlorinated products, and soft metals.
STABILITY:	Product is stable.
POLYMERIZATION:	Will not occur.
DECOMPOSITION PRODUCTS:	May give off phosphorous and nitrous oxide at high heat (fire conditions).

SPILL OR LEAK PROCEDURES

SPILL:	See Emergency/ First Aid Procedures and Special Protection Information for hazards and exposure controls. Dike with sand or earth to contain spill. Avoid ignition sources. Absorb with sand to other non-flammable material and transfer to approve DOT drum for recovery or disposal.
DISPOSAL:	Dispose of in accordance with local, state and federal regulations.
GENERAL:	CERCLA/SARA requires notification to the appropriate Federal state and local authorities of releases of hazardous or extremely hazardous quantities equal to or greater than the Reportable Quantities (RQs) in 50 CFR 302.4 and 40 CFR 355. SARA Title 313 requires submissions of annual reports of releases of toxic chemicals that appear in 40 CFR 372. Components present in this product at a level which could require reporting under statute are listed under identification.

TRANSPORTATION

DOT HAZARD CLASSIFICATION:	Corrosive Liquid, Acidic, Inorganic, NOS 8, UN 3264, PG II
US DOT LABEL:	Corrosive, UN3264, Class 8
PLACARD REQUIRED OVER 1,000 LBS.:	Corrosive, Class 8, Label as required by OSHA Hazard Communication Standard, and any applicable State and local regulations.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

ACID CLEANER #5

BENEFITS

1. Economical to Use
2. Low Foam for CIP
3. Penetrates and Removes Beer Stone Rapidly
4. Pacifies and Brightens Stainless Steel

DESCRIPTION

ACID CLEANER #5 is a new blend of inorganic acids with a low foam detergent designed to rapidly attack scale and stone to leave metal surfaces sparkling. It is ideally suited to perform a variety of tough cleaning jobs in the Food and Beverage Industry. This special acid blend will help remove the stubborn protein stain (blue rainbow) as well as food deposits like starch. ACID CLEANER #5's low foaming characteristic enhances cleaning action when applied by circulation, spray or agitated soak cleaning. ACID CLEANER #5 can be used to pacify and re-pacify stainless steel.

PROPERTIES

APPEARANCE	BLUE to PURPLE LIQUID
FOAM	LOW
WETTING	GOOD
pH @ 1 ounce per gallon	2.1
pH of concentrate	1.2
BIODEGRADABLE	YES

GENERAL USE DIRECTIONS

Acid Rinse: Use 1 oz. in 5 to 10 gallons of water in the final rinse cycle at 50° to 140°F for 10 to 20 minutes. After use, a potable water rinse is required.

Acid Wash: Concentrations from 1/2 to 1 ounce per gallon at 120°-140°F for 10 to 40 minutes are recommended for most soils. After use, a potable water rinse is required.

Initial Acid Passivation: After cleaning vessel with alkali cleaner use 5 ounces of Acid #5 per gallon of water. Circulate for 20 minutes at 120°F. Drain vessel and ALLOW TO AIR DRY. The vessel must air dry to achieve successful passivation. (Before processing, it is required to rinse with potable water and sanitize according to public health standards.)

Re-passivation: Use 1 oz. per gallon of water and circulate for 30 minutes at 120°F. ALLOW TO AIR DRY. (Before processing, it is required to rinse with potable water and sanitize according to public health standards.)

Note: Sensitive alloys may require milder concentrations.

COMPLIANCE

ACID CLEANER #5 is acceptable to the United States Department of Agriculture as an acid cleaner for use in official meat, poultry, rabbit and egg processing establishments.

SAFETY

DANGER - Contains Nitric and Phosphoric acids, a strong oxidizer that will cause corrosion to skin and eyes. Do not get on clothing. Rinse thoroughly after use. Do not mix with chlorine or alkaline product. If used at temperatures over 180° F, nitrous oxide may be formed.

If contact with skin and eyes occur, flush with cool water for 15 minutes. If redness develops, seek medical attention.

For ingestion dilute by drinking large amounts of milk, if milk is not available, use water. Do not induce vomiting. Seek medical attention.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 6-25-98
REPLACES: 09-22-92

IDENTIFICATION

PRODUCT NAME: ACID CLEANER NO. 6
COMPOSITION: MIXTURE OF PHOSPHORIC AND NITRIC ACID

This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statue are:

HAZARDOUS INGREDIENTS	%	TLV LIMITS IN AIR
Phosphoric Acid (CAS 7664-38-2)	15	1 mg/m3 (ACGIH)
Nitric Acid (CAS 7697-37-2)	20	2 ppm (ACGIH)

PHYSICAL DATA

APPEARANCE: Light Blue
ODOR: Acidic
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.19
EVAPORATION RATE: 1 (water = 1)
BOILING POINT: 213° F
VAPOR PRESSURE: 24 mm. Hg.
pH CONCENTRATE: < 1

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non - combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic fumes.

EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated.

NFPA HAZARD RATING: Health 3; Flammability 0; Reactivity 1

HEALTH HAZARD DATA

- CAUSES SEVERE BURNS TO SKIN AND EYES. HARMFUL OR FATAL IS SWALLOWED.
- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid contact with skin or eyes.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive.
- Do not mix with chlorine containing products as it will cause a release of chlorine gas.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure irrigate with saline solution. Get medical attention as soon as possible.

SKIN CONTACT: Flush with cool running water. If irritation develops get medical attention.

INGESTION: If conscious, give several glasses of milk, water, egg whites or gelatin solution. Get medical attention immediately. DO NOT induce vomiting.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Atmospheric levels should be maintained below the exposure limits Listed in Hazardous Ingredients by using engineering controls. If not feasible, Use approved full face-piece air-purifying respirator.
VENTILATION SYSTEM:	Provide general and/or local exhaust ventilation to maintain airborne levels below the exposure limits in Hazardous Ingredients. Refer to "Industrial Ventilation" by ACGIH for a manual of recommended practices.
SKIN PROTECTION:	If skin or contamination of clothing is likely, protective clothing should be worn.
EYE PROTECTION:	Chemical goggles are required.
PROTECTIVE GLOVES:	Wear chemical resistant gloves.

REACTIVITY DATA

INCOMPATIBLE MATERIALS:	Alkalis, chlorinated products, soft metals, organic compounds.
STABILITY:	Product is stable.
POLYMERIZATION:	Will not occur.
DECOMPOSITION PRODUCTS:	May give off phosphorous and nitrous oxide at high heat (fire conditions).

SPILL OR LEAK PROCEDURES

SPILL:	See Emergency/ First Aid Procedures and Special Protection Information for hazards and exposure controls. Dike with sand or earth to contain spill. Avoid ignition sources. Absorb with sand to other non-flammable material and transfer to approve DOT drum for recovery or disposal.
DISPOSAL:	Dispose of in accordance with local, state and federal regulations.
GENERAL:	CERCLA/SARA requires notification to the appropriate Federal state and local authorities of releases of hazardous or extremely hazardous quantities equal to or greater than the Reportable Quantities (RQs) in 50 CFR 302.4 and 40 CFR 355. SARA Title 313 requires submissions of annual reports of releases of toxic chemicals that appear in 40 CFR 372. Components present in this product at a level which could require reporting under statute are listed under identification.

TRANSPORTATION

DOT HAZARD CLASSIFICATION:	Corrosive liquid, Acidic, Inorganic, N.O.S. 8, UN3264, PG II
US DOT LABEL:	Corrosive, UN3264, Class 8
PLACARD REQUIRED: OVER 1,000 LBS.:	Corrosive, Class 8, label as required by OSHA Hazard Communication Standard, and any applicable state and local regulations.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

ACID CLEANER #6

BENEFITS

1. Effectively Removes Stone
2. Penetrates dried beer
3. Low Foam
4. Brightens Aluminum Surfaces

DESCRIPTION

ACID CLEANER #6 is a specially formulated as a keg cleaner to solve scale formation that develops with standard alkaline cleaners. Its blend of detergent and acid quickly penetrates dried beer and easily dissolves oxalate scale. Being an acid detergent, it can clean in a CO_2 environment without damaging the keg. Continual use as the main keg cleaner will keep scale free and condition its inner surfaces.

ACID CLEANER #6 can also be used as the main cleaner in bright beer tanks. Its ability to work cold and in CO_2 makes it ideal for this job. It can save time not only by not requiring CO_2 evaquation, but also its cold use will not create "rain storms" in the cooler.

PROPERTIES

APPEARANCE……..……BLUE TO PURPLE LIQUID
FOAM……...LOW
WETTING……..GOOD
pH @ 0.5%…….……...2.1
pH @ 1.0%……1.8
BIODEGRADABLE……..…YES

GENERAL DIRECTIONS

Keg Cleaning:

Use at a rate of 1-2 oz per gallon of water at 120°-160°F. Most automatic keg washers will only allow a 2 minute wash cycle by requiring a CO_2 purge and refill. Because ACID CLEANER #6 can work in a CO_2 environment, the CO_2 purge can be shortened or eliminated and the wash cycle lengthened, producing a longer wash cycle if desired. Oxine is recommended as the sanitizer in this type of application that is extremely effective in a CO_2 environment.

Bright Beer Tanks:

Use at a rate of 2-3 oz. per gallon of water at 40-60°F for 15-20 minutes. Rinse with cold potable water. Do a final rinse with either Oxine or Saniclean before refilling the tank.

COMPLIANCE

ACID CLEANER #6 is acceptable to the U.S. Department of Agriculture as an acid cleaner for use in official meat, poultry, rabbit, and egg processing establishments. After use, a potable water rinse is required.

SAFETY

ACID CLEANER #6 is a strong acid. Never mix or store near Chlorinated Compounds. This compound will react with soft metals. If it comes in contact with these items it will produce explosive and/or poisonous gases. See product label for more precautionary information.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 6-09-98
REPLACES: 09-22-92

IDENTIFICATION

PRODUCT NAME: ACID LINE CLEANER
COMPOSITION: MIXTURE OF PHOSPHORIC AND NITRIC ACIDS

This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting the statute are:

HAZARDOUS INGREDIENTS:	**%**	**TLV LIMIT IN AIR**
Phosphoric Acid (CAS 7664-38-2)	6	1 mg/m3 (ACGIH)
Nitric Acid (CAS 7697-37-2)	38	2 ppm (ACGIH)

PHYSICAL DATA

APPEARANCE: Dark Blue Liquid
ODOR: Acidic
SOLUBILITY IN WATER: Complete
pH of CONCENTRATE: 1.0
EVAPORATION RATE: 1 (water=1)
BOILING POINT: 220° F.
SPECIFIC GRAVITY: 1.16
VAPOR PRESSURE: 24 mm Hg.

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non - combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic fumes.

EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with soft metals may evolve flammable hydrogen gas. Containers may explode when heated. Contact with chlorine will evolve a chlorine gas.

NFPA Hazard RATING: Health 3; Flammability 0; Reactivity 1

HEALTH HAZARD DATA

- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid any skin or eye contact.
- Do not mix with chlorine containing products as it will cause the release of chlorine gas.
- Do not use on galvanized iron.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure irrigate with saline solution. Get medical attention as soon as possible, especially if redness or irritation develops.

SKIN CONTACT: Flush with cool running water. If irritation develops get medical attention.

INGESTION:	If conscious, drink large amounts of milk or water, followed by Milk of Magnesia, olive oil, or beaten egg whites. Get medical attention immediately. DO NOT induce vomiting.
INHALATION:	Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Atmospheric levels should be maintained below the exposure limits Listed in Hazardous Ingredients by using engineering controls. If not feasible, Use approved full face-piece air-purifying respirator.
VENTILATION SYSTEM:	Provide general and/or local exhaust ventilation to maintain airborne levels below the exposure limits in Hazardous Ingredients. Refer to "Industrial Ventilation" by ACGIH for a manual of recommended practices.
SKIN PROTECTION:	If skin or contamination of clothing is likely, protective clothing should be worn.
EYE PROTECTION:	Chemical goggles are required.
PROTECTIVE GLOVES:	Wear chemical resistant gloves.

REACTIVITY DATA

INCOMPATIBLE MATERIALS:	Alkalis, chlorinated products, and soft metals.
STABILITY:	Product is stable.
POLYMERIZATION:	Will not occur.
DECOMPOSITION PRODUCTS:	May give off phosphorous and nitrous oxide at high heat (fire conditions).

SPILL OR LEAK PROCEDURES

SPILL:	See Emergency/ First Aid Procedures and Special Protection Information for hazards and exposure controls. Dike with sand or earth to contain spill. Avoid ignition sources. Absorb with sand to other non-flammable material and transfer to approve DOT drum for recovery or disposal.
DISPOSAL:	Dispose of in accordance with local, state and federal regulations.
GENERAL:	CERCLA/SARA requires notification to the appropriate Federal state and local authorities of releases of hazardous or extremely hazardous quantities equal to or greater than the Reportable Quantities (RQs) in 50 CFR 302.4 and 40 CFR 355. SARA Title 313 requires submissions of annual reports of releases of toxic chemicals that appear in 40 CFR 372. Components present in this product at a level which could require reporting under statute are listed under identification.

TRANSPORTATION

DOT HAZARD CLASSIFICATION:	Corrosive Liquid, Acidic, Inorganic, NOS 8, UN 3264, PG II
US DOT LABEL:	Corrosive, UN3264, Class 8
PLACARD REQUIRED OVER 1,000 LBS.:	Corrosive, Class 8, Label as required by OSHA Hazard Communication Standard, and any applicable State and local regulations.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 4-6-99
REPLACES: 08-05-97

IDENTIFICATION

PRODUCT NAME: **ALL PURPOSE # 1**
COMPOSITION: **Mixture of Glycol Ether, Potassium Hydroxide, Anionic and Nonionic detergents.**

This product requires submission of an annual report of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENTS:	%	TLV LIMIT IN AIR
POTASSIUM HYDROXIDE (CAS 1310-58-3)	3.5	2 mg/m3 (ACGIH)
GLYCOL ETHER (CAS 107-98-2)	4.0	100 ppm (OSHA)
		100 ppm (ACGIH)

PHYSICAL DATA

APPEARANCE: Clear Green
ODOR: Wintergreen
EVAPORATION RATE: 1 (water=1)
VAPOR PRESSURE :Unknown
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.030
pH of CONCENTRATE: 12.6
BOILING POINT: 220°F.

FIRE AND EXPLOSION DATA

FLAMMABILITY: **Not flammable**
EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS: **NONE KNOWN**

HEALTH HAZARD DATA

EYE EFFECT: Irritant, prolonged contact may damage eye.
SKIN EFFECT: Irritant, prolonged contact will cause redness and blistering.
INGESTION: May cause nausea, vomiting, abdominal pain.
INHALATION: May irritate the nose and throat and cause coughing and chest discomfort.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with cool running water for at least 15 minutes. Get medical attention.

SKIN CONTACT: Immediately flush with large amounts of cool running

water. If irritation develops see a physician.

INGESTION: **If conscious, give several glasses of water or milk. DO NOT induce vomiting. Call a physician immediately.**

INHALATION: **Get person to fresh air. If burning and irritation persist, get medical attention.**

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: **Recommended (rubber,PVC)**
EYE PROTECTION: **Recommended (goggles, safety glasses)**
LOCAL EXHAUST: **Recommended**
OTHER EQUIPMENT: **None required**

REACTIVITY DATA

INCOMPATIBLE MATERIALS: **Cationic material**
STABILITY: **Product is stable**
POLYMERIZATION: **Will not occur**
DECOMPOSITION PRODUCTS: **None known**

SPILL OR LEAK PROCEDURES

SPILL: **Contain all spills and leaks to prevent discharge into the environment. Soak up with an absorbent, shovel into waste containers, flush with water.**

DISPOSAL: **Remove material or dispose of (incineration is preferred) in accordance with all applicable federal, state and local regulations. Material collected with absorbent may be disposed of in a permitted landfill in accordance with federal, state and local regulations.**

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 1-800-535-5053

ALL PURPOSE CLEANER #1
MULTI PURPOSE LIQUID CLEANER

BENEFITS

1. Versatile Multi-Purpose Cleaner
2. Economical
3. Non-Corrosive to Soft Metals
4. Powerful Wetting and Penetrating Action
5. Removes Grease, Grime, and Many Marking Inks

DESCRIPTION

ALL PURPOSE CLEANER #1 is a synergistic combination of multiple wetting agents, synthetic detergents, solvents, and mild alkali designed to function as an overall cleaner throughout the Food and Dairy Industries. It is particularly effective in removing oil, grease, and fat residues from food processing equipment. ALL PURPOSE CLEANER #1 depends on the synergism of its mild chemical ingredients to handle a variety of difficult to remove soils. ALL PURPOSE CLEANER #1 is recommended for use on all metals, plastics, rubber, and rubber like materials and is ideal for use where many cleaning functions must be performed by a single product.

PROPERTIES

APPEARANCE……..……..CLEAR YELLOW LIQUID
ODOR……..……MILD
FOAM……..MODERATE
WETTING……..EXCELLENT
CAUSTICITY…….....NONE
Ph, CONCENTRATE……..12 TO12.5
BIODEGRADABLE……..YES

GENERAL DIRECTIONS

ALL PURPOSE CLEANER #1 can be applied manually as in general housekeeping operations. Dilute 1 part ALL PURPOSE CLEANER #1 with 10 - 20 parts water at up to 120 deg. F. In high pressure spray cleaning or CHP systems, a dilution of 1 part ALL PURPOSE CLEANER #1 per 50 - 100 parts water at 140 deg. F. is recommended. When used in steam cleaning equipment, use 1:10 TO 1:20. In power floor scrubbers, use ranges from 1:10 to 1: 80 depending on the soil load to be removed.

COMPLIANCE

ALL PURPOSE CLEANER #1 is acceptable to U.S. Department of Agriculture as an acid cleaner for use in all official meat, poultry, rabbit and egg processing establishments. After use, a potable water rinse is required.

SAFETY

ALL PURPOSE CLEANER #1 is an alkaline liquid. See product label for precautionary information.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50 TH. AVENUE
COMMERCE CITY, CO 80022

PHONE: 303-287-0186
MSDS DATE: 6-10-98
REPLACES: 05-28-92

IDENTIFICATION

PRODUCT NAME: ALL PURPOSE #2
COMPOSITION: CAUSTIC SODA AND SURFACTANT

This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENTS:	**%**	**TLV LIMIT IN AIR**
Caustic Soda (CAS #1310-73-2)	24.5	2 mg/m3 (ACGIH) 2 mg/m3 (OSHA)

PHYSICAL DATA

APPEARANCE: Dark brown liquid
ODOR: Sweet
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.29
EVAPORATION RATE: 1 (water = 1)
BOILING POINT: 220° F.
FLASH POINT: None
pH CONCENTRATE: 13 - 13.5

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non-combustible. Substance itself does not burn but may decompose to produce corrosive and/or toxic fumes.

EXTINGUISHING MEDIA: Water, carbon dioxide, foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with soft metals may evolve flammable hydrogen gas. Containers may explode when heated.

NFPA HAZARD RATING: Health 3; Flammability 0; Reactivity 1

HEALTH HAZARD DATA

- TOXIC. Inhalation, ingestion or skin contact with material may cause severe injury or death.
- CAUSES SEVERE BURNS TO SKIN AND EYES. HARMFUL OR FATAL IF SWALLOWED.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid contact with skin or eyes.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive and/or toxic gas.
- Run off from fire control or dilution water may be corrosive.
- Do not mix with acids.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure irrigate with saline solution. Get medical attention as soon as possible.

SKIN CONTACT: Flush with cool running water for at least 5-10 minutes. If irritation develops get medical attention.

INGESTION: If conscious, drink large amounts of milk or water, followed by citrus juice or diluted vinegar. Get medical attention immediately. DO NOT induce vomiting.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial

respiration if victim is not breathing.

SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS:	Special ventilation is not required under normal use. Use local exhaust ventilation where dust, mist or spray may be generated. Note: Where carbon monoxide or other reaction products may be generated, special ventilation may be required.
RESPIRATORY:	Respiratory protection is not required under normal use. Use NIOSH/MSHA approved respirator where dust, mist, or spray may be generated.
EYE:	Wear chemical safety goggles plus full face shield to protect against splashing.
GLOVES:	Chemical Resistant gloves should be worn and may be decontaminated by washing with mild soap and water. Natural and butyl rubber have been suggested.
OTHER CLOTHING AND EQUIPMENT:	Impervious protective clothing and chemically resistant safety shoes should be worn to minimize contact. Wash contaminated clothing with soap and water and dry before reuse. Showers and eyewash facilities should be in close proximity.

REACTIVITY DATA

INCOMPATIBLE MATERIALS:	Acids and soft metals.
STABILITY:	Product is stable.
POLYMERIZATION:	Will not occur.
DECOMPOSITION:	None known.

SPILL OR LEAK PROCEDURES

SPILL: Leaks should be stopped. Spills should be contained and cleaned up immediately. Liquid spills should be removed by using a vacuum truck. Solid spills should be scooped up and placed in approved containers for disposal. Neutralize remaining traces of material with any dilute inorganic acid such as hydrochloric, sulfuric, nitric, phosphoric, or acetic acid. The spill area should then be flushed with water followed by liberal covering of sodium bicarbonate. All clean-up material should be removed and placed in approved containers, labeled and stored in a safe place to await proper treatment and disposal. Spills on areas other than pavement, e.g. dirt or sand, may be handled by removing the affected soils and placing in approved containers. Persons performing clean-up work should wear adequate personal protective equipment and clothing. Spills or releases should be reported if required, to the appropriate local, state, and federal regulatory agencies.

CAUTION: All Purpose #2 may react violently with acid water.

DISPOSAL: The materials resulting from clean-up operations may be hazardous waste and, therefore, subject to specific regulations. Package, storage, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state, and local health environmental regulation. Shipments of waste materials are subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state and local agencies receive proper notification of spill and disposal methods.

TRANSPORTATION

DOT HAZARD CLASSIFICATION:	Sodium Hydroxide Solution, 8, UN1824, PG II
DOT US LABEL:	Corrosive, UN1824, Class 8
PLACARD REQUIRED OVER 1,000 LBS.:	Corrosive, Class 8, Label as required by OSHA Hazard Communication Standard, and any applicable state and local regulations.

ALL PURPOSE CLEANER #2
ALKALINE FOAM CLEANER

BENEFITS

1. One Step Foam Cleaner
2. Rinses Free
3. Economical
4. Contains No Phosphates

DESCRIPTION

ALL PURPOSE CLEANER #2 is a moderately heavy duty liquid cleaner designed for use as a one step foam cleaner to quickly penetrate fats, grease, and oil. ALL PURPOSE CLEANER #2 is a blend of foam additives and heavy duty alkali which when added to water is ready for use in any suitable foaming device. The foam that is produced has been proven effective in removing encrusted soils encountered in food and beverage plants. ALL PURPOSE CLEANER #2 is recommended for use on stainless steel, iron, and steel surfaces.

PROPERTIES

APPEARANCE…….VISCOUS BROWN LIQUID
ODOR……...……SLIGHT, TYPICAL
FOAM…….EXCELLENT
WETTING……..EXCELLENT
pH @ 1%……...…....12.5 to 12.7
BIODEGRADABLE……..YES
FREEZING POINT……...……..0 Deg. F.

GENERAL DIRECTIONS

Use one gallon of ALL PURPOSE CLEANER #2 to 50 gallons of water at 140 deg. F. Apply through a foaming device at 50 psi minimum in an even layer of foam for 10 minutes followed by a water rinse. The actual contact time and concentration of ALL PURPOSE CLEANER #2 may vary depending on the soil load.

COMPLIANCE

ALL PURPOSE CLEANER #2 is acceptable to U.S. Department of Agriculture as an acid cleaner for use in all official meat, poultry, rabbit and egg processing establishments. After use, a potable water rinse is required.

SAFETY

ALL PURPOSE CLEANER #2 contains caustic alkali and wetting agents. See product label for precautionary information.

Rev. 12/98

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 01-12-98
REPLACES: 02-22-92

IDENTIFICATION

PRODUCT NAME: BEST CLEANER #1
COMPOSITION: BLEND OF PHOSPHATES AND SURFACTANTS

HAZARDOUS INGREDIENTS: NONE

PHYSICAL DATA

APPEARANCE: White Powder
ODOR: Sweet
SOLUBILITY IN WATER: Up to 10%
BULK DENSITY: 1g/ml
pH of 1% SOLUTION: 12.5

FIRE AND EXPLOSION DATA

FLAMMABILITY: Not flammable
EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam
UNUSUAL FIRE & EXPLOSION HAZARDS: May emit toxic fumes of Phosphorus Oxide with high heat.

HEALTH HAZARD DATA

EYE EFFECT: Eye irritant, can cause damage on prolonged contact.
SKIN EFFECT: Skin irritant, will cause redness with prolonged contact.
INHALATION: Dust can be irritating if inhaled
INGESTION: Irritating and may cause nausea or diarrhea

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes, get medical attention.
SKIN CONTACT: Flush with cool running water, if irritation persists get medical attention.
INHALATION: Get to fresh air.
INGESTION: If conscious, give a glass of water, milk, or egg whites and call a physician immediately.

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: Recommended (rubber)
EYE PROTECTION: Recommended (safety glasses, or goggles)
RESPIRATORY: Not recommended for normal use, if large amounts of dust are generated use a respirator.
OTHER EQUIPMENT: As needed to minimize skin exposure.
VENTILATION: Adequate to remove any dust produced.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Acids
STABILITY: Product is stable
POLYMERIZATION: Will not occur
DECOMPOSITION PRODUCTS: May give off phosphorus oxide in a fire.

SPILL AND DISPOSAL

SPILL: Wear dust mask and safety equipment. Sweep up material and put into drums. Flush residue to sewer with large amounts of water.

DISPOSAL: Dispose of waste materials used in cleanup spills in a manner approved for this material. Consult appropriate federal, state, and local regulatory agencies to ascertain proper disposal procedures.

Prepared by:_____

BEST CLEANER

BENEFITS

1. Free Rinsing, Leaves No Water Spots.
2. Extremely Effective in Hard Water.
3. High Phosphate-High Surfactant.
4. Can Be Used as a Manual, High Pressure, or Foam Cleaner.
5. Economical to Use.

DESCRIPTION

BEST CLEANER is a non-chlorinated powder cleaner designed to tolerate hard water. The high phosphate and high surfactant content makes BEST CLEANER an excellent free rinsing spotless-cleaner. BEST CLEANER is an extremely versatile product, can be used through a variety of high-pressure equipment, or as a manual cleaner. Its blend of surfactants and alkali makes it a mild grease and oil remover. BEST CLEANER is excellent as a high pressure cleaner around the filler area. It easily emulsifies fill white grease leaving equipment spot free.

PROPERTIES

APPEARANCE……...…….WHITE FREE FLOWING POWDER
FOAM……...……..…HIGH
pH of a 1% SOLUTION…….……11.5 to 12.1
%Na_2O to pH of 8.0...……..……..……....8.8 to 9.8
% Na_2O to pH of 4.1 ……...……...…..…….……....15.1 to 16.1
TOTAL SOLUBILITY…….……8.0% CLEAR SOLUTION

GENERAL USE DIRECTIONS

BEST CLEANER concentrations will vary due to cleaning frequency, soil conditions, water temperatures and method of application. Recommended amounts of BEST CLEANER to be used in 50 gallons of water:

SOIL/SURFACE	APPLICATION	COLD WATER	HOT WATER
Dairy/Beverage/ Hard Surface	Manual	2-4 lbs.	1-2 lbs.
"	Foam	4-6 lbs.	2-4 lbs.
"	Spray	1-2 lbs.	½-1 lbs.
Meat/Hard Surface	Manual	3-5 lbs.	2-3 lbs.
"	Foam	5-7 lbs.	3-5 lbs.
"	Spray	2-4 lbs.	1-2 lbs.

Allow solution to dwell 2 to 3 minutes and follow with a pressure water rinse. In most cases, hard rubbing is not necessary. After rinsing, allow to drain.

COMPLIANCE

BEST CLEANER is acceptable to the United States Department of Agriculture for use in official meat, poultry, rabbit, and egg processing establishments. After use, surfaces must be rinsed with potable water.

SAFETY

BEST CLEANER is an eye, skin, and inhalation irritant. See label for more precautionary and First Aid information.

Rev. 12/98

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 01-11-98
REPLACES: 04-01-96

IDENTIFICATION

PRODUCT NAME: BEVERAGE LINE CLEANER
COMPOSITION: SILICATES, PHOSPHATES, AND SURFACTANTS

This product may require submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which reporting under the statue are:

HAZARDOUS INGREDIENTS:	%	TLV LIMIT IN AIR
Sodium Metasilicate (CAS# 006834-92-0)	30%	2 mg/m³ (PEL) 2 mg/m³ (OSHA)

PHYSICAL DATA

APPEARANCE: White Powder
ODOR: Odorless
MELTING POINT: N/A
SOLUBILITY IN WATER: < 10%
pH of 1% SOLUTION: 11-12
BULK DENSITY: 64 lbs/cu ft

FIRE AND EXPLOSION DATA

FLAMMABILITY: Not flammable
EXTINGUISHING MEDIA: Water, carbon dioxide, foam
UNUSUAL FIRE & EXPLOSION HAZARDS: None known

HEALTH HAZARD DATA

EYE CONTACT: Irritant, prolonged contact may damage eye.
SKIN CONTACT: Irritant, prolonged contact will cause redness and blistering.
INGESTION: May cause nausea, vomiting, abdominal pain.
INHALATION: May irritate the nose and throat and cause coughing and chest discomfort.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with cool running water for at least 15 minutes Get medical attention.

SKIN CONTACT: Immediately flush with large amounts of cool water. If irritation develops see a physician.

INHALATION: Get person to fresh air. If burning and irritation persist get medical attention.

INGESTION: If conscious, give several glasses of milk or water. Do not induce vomiting. Call a physician immediately.

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: Recommended (rubber, PVC)
EYE PROTECTION: Recommended (goggles, safety glasses)
VENTILATION: Adequate to remove any dust produced
RESPIRATORY: Recommended (dust mask)
OTHER EQUIPMENT: None needed

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Acids
STABILITY: Stable under dry conditions, will pick up water.
POLYMERIZATION: Keep container closed.
DECOMPOSITION PRODUCT: None known

SPILL OR LEAK PROCEDURES

SPILL: Wear dust mask and safety equipment. Sweep up material and put into drums. Flush residue to sewer with large amount of water.

DISPOSAL: Dispose of waste materials used in cleaning up spills in a manner approved for this material. Consult appropriate federal, state, and local regulatory agencies to ascertain proper disposal procedures.

Prepared by:_____
Charles B. Talley

BOILER TREATMENT

For Brew Pubs and Microbreweries

❖ *BENEFITS*

- ❖ Easy to use
- ❖ One product does it all
- ❖ Effective over a broad range of water hardness

❖ *DESCRIPTION*

Five Star's BOILER TREATMENT has been formulated to control scale buildup and retard rust formation in brewpubs and microbreweries.

Most Boiler Systems' are compact and do not return the steam condensation back to the original boiler, a simple treatment system is required. Five Star's BOILER TREATMENT is a complex formulation containing polymeric sludge conditions, sulfite oxygen scavengers and crystal modifiers. This complex formulation will prevent oxygen from pitting the boiler metal and free hard water scale that forms on sidewalls.

❖ *PROPERTIES*

APPEARANCE……CLEAR TO STRAW COLOR

pH……6.5-7.5

SPECIFIC GRAVITY……1.16

❖ *GENERAL USE DIRECTIONS*

The degree of hardness in the make up water will determine the amount of BOILER TREATMENT to be added and the frequency of sludge removal (blowouts).

BOILER TREATMENT should be injected into the feed water down stream of the feed water pump. This will allow the oxygen scavenger to remove ALL the oxygen from the feed water before it enters the boiler.

Dosage of BOILER TREATMENT is based on feed water hardness and oxygen content. The higher the hardness or oxygen content the more BOILER TREATMENT will be required. For conditions where 0 to 5 grains of water hardness exists a level of 30-60 ppm sulfite residual is required. 3.6 ounces of BOILER TREATMENT in 100 gallons of make up water will produce a 45 ppm sulfite level. When levels of 6 grains and higher are reached contact Five Star Affiliates.

Medium to hard water will require a water sample sent to Five Star Affiliates, to determine the exact BOILER TREATMENT level that will be required.

❖ *SAFETY*

DANGER: This product is a skin and eye irritant. Prolonged eye contact may cause redness, pain and irritation. For eye and skin contact flush with cool running water for 15 minutes. If redness develops, seek medical attention.

FIRST AID: If swallowed, induce vomiting. Drink large amounts of olive or mineral oil. Call a physician immediately.

BOILER TREATMENT

Boiler treatment is the chemistry of water. Water has a variety of materials, all of which in one way or another will shorten the life of a boiler. Water is in fact the universal solvent.

The first compounds of importance are the two common dissolved gasses Oxygen and Carbon Dioxide found in water. Oxygen when heated or at ambient temperature will react with the metals found in the boiler and forms compounds called oxides. The most common of theses would be ferric oxide or rust. The appropriate and standard counter to the oxygen problem is to add an oxygen scavenger. The Carbon Dioxide will react in water when heated to form carbonic acid. Carbonic acid will react in one of two ways. When the pH of the boiler water is neutral or below it will create pinholes in the metal parts of the boiler. This is normally treated with the addition of an alkaline amine that not only neutralizes the acid but also creates a non-adhering flock in the boiler. When the pH of the water is above neutral there is the normally enough alkali metals present, such as calcium or magnesium to prevent the carbonic acid from forming. However, it does create a second problem and that is the formation of carbonate scale, which will be covered next.

The calcium and magnesium are naturally carried in water; the scale they form is the most visible of all boiler problems. Both will combine to form carbonates that will adhere to all surfaces in the boiler creating a, limestone deposit. This stone will build in pipes corroding them and eventually clogging them shut. It will also build on the heating plates or coils dropping the efficiency of the boil daily. With out the help of a boiler chelator or a flocking agent the mineral problem will shorten the life of a normal boiler by half it's life rating. The other minerals such as

silica, copper, lead; etc. will also be sequestered by the chelator.

Now that the general problems have been discussed we can now talk about a standard procedure to treat these problems.

When a hot liquor tank or a boiler has been observed with scale it should be treated as quickly as possible. As stated before two things are happening; first the scale is dropping the efficiency of the equipment, and secondly the scale is not allowing the metal to breathe causing corrosion. The first tell tale sign would be that a rolling boil is taking longer in the kettle or that the hot liquor has a cloudy appearance. The equipment should be first de-scaled with a mild acid. Fives Star's Powder Acid is recommended. It should be used at a rate of 3-6% depending on the amount of scale found on the equipment. The dwell time will vary. It is not uncommon to allow the solution to remain in the boiler over night when the deposits are over an eighth of an inch thick. A word of caution if the equipment has been used for a number of years the corrosion from the limestone could caused extensive corrosion. The limestone may be all that is holding the boiler together.

Before de-scaling check for weak spots in the boiler.

The make up water for the boiler should be tested to determine the exact pH and mineral content. Once this is completed the proper dosage of Five Star's Boiler Treatment can be determined. It is best to inject this material as far down stream of the boiler as possible. This will allow it to react with the make up water and combine with the dissolved oxygen before it reaches the boiler. It will also combine with any minerals present and prevent the formation of scale. In some cases the make up water will be acidic. When this occurs a second compound containing alkaline amines (Five Star's Steam Line Treatment) should be added to adjust the pH to neutral which will prevent the formation of Carbonic Acid.

The white scale formation that is found in the hot liquor tank has to be treated in a different manner. Since this water will be used throughout the brewing process it can only be treated only with food grade items. This can be achieved if care is taken. The make up water has to be constantly monitored for it's exact pH. The adjustment can be made with either phosphoric acid for alkaline water or with Tetra Potassium Pyrophosphate for acidic water to a pH between 6.6-7.5. This is a very intensive process since food is involved; making a mistake at this point could be disastrous. Most brewers will normally opt to de-scale the hot liquor tank on a normal maintenance schedule to avoid potential problems. Which is probably the easiest and safest way to go.

The larger breweries that have a steam return line will need to treat the return condensate, because the water has been boiled and is by definition soft, acidic and will dissolve the return line within a few year. This is normally noted when the pipe threads begin to leak. Injecting the Five Star Steam Line Treatment will produce an alkaline condition in the line and eliminate the corrosion problem.

The question that is always asked is "what happens with all of these chemicals that have been added to my boiler"? The answer as one may have guessed in not a simple one. The easiest answer would be to that the amines, the chelator, and the oxygen scavengers are all compatible, they will combine to form a non-adhering flock in the bottom of the boiler. This flock is removed by "blowing down" the boiler on a regular bases. The blow down process is nothing more then opening the drain valve on the boiler similar to the drain on a hot water heater and allowing the water to run until clear. When clear shut off the valve and resume operations. It is normally recommended to do the blow down once every 6 months, however, more often

can't hurt.

BOILER TREATMENT

For Brew Pubs and Microbreweries

BENEFITS

1. Easy to use
2. One product does it all

3. Effective over a broad range of water hardnesses

DESCRIPTION

Five Star's BOILER TREATMENT has been formulated to control scale buildup and retard rust formation in brewpubs and microbreweries.

Most Boiler Systems' are compact and do not return the steam condensate back to the original boiler, a simple treatment system is required. Five Star's BOILER TREATMENT is a complex formulation containing polymeric sludge conditions, sulfite oxygen scavengers and crystal modifiers. This complex formulation will prevent oxygen from pitting the boiler metal and free hard water scale that forms on sidewalls.

PROPERTIES

APPEARANCE……...…….CLEAR TO STRAW COLOR

pH…….……...…….……..……6.5-7.5

SPECIFIC GRAVITY…….……...……1.16

GENERAL USE DIRECTIONS

The degree of hardness in the make up water will determine the amount of BOILER TREATMENT to be added and the frequency of sludge removal (blowouts).

BOILER TREATMENT should be injected into the feed water down stream of the feed water pump. This will allow the oxygen scavenger to remove ALL the oxygen from the feed water before it enters the boiler.

Dosage of BOILER TREATMENT is based on feed water hardness and oxygen content. The higher the hardness or oxygen content the more BOILER TREATMENT will be required. For conditions where 0 to 5 grains of water hardness exists a level of 30-60 ppm sulfite residual is required. 3.6 ounces of BOILER TREATMENT in 100 gallons of make up water will produce a 45 ppm sulfite level. When levels of 6 grains and higher are reached contact Five Star Affiliates.

Medium to hard water will require a water sample sent to Five Star Affiliates, to determine the exact BOILER TREATMENT level that will be required.

SAFETY

WARNING: This product is a skin and eye irritant. Prolonged eye contact may cause redness, pain and irritation. For eye and skin contact flush with cool running water for 15 minutes. If redness develops, seek medical attention.

If swallowed, induce vomiting. Drink large amounts of olive or mineral oil. Call a physician immediately.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 6-26-98
REPLACES: 9-9-93

IDENTIFICATION

PRODUCT NAME: CALCIUM CARBONATE
COMPOSITION:

This product is not hazardous.

PHYSICAL DATA

APPEARANCE: Fine white powder
BOILING POINT: NA
SPECIFIC GRAVITY: NA
pH OF CONCENTRATION: NA
ODOR: NA
VAPOR DENSITY: NA
EVAPORATION RATE: NA

FIRE AND EXPLOSION DATA

FLAMMABILITY: Not flammable
EXTINGUISHING MEDIA: No special precautions necessary when fighting fires involving this product.
UNUSUAL FIRE AND EXPLOSION HAZARDS: No special fire hazards are known to be associated with this product.
NFPA HAZARD RATING: NA

HEALTH HAZARD DATA

EYE: May cause mild eye irritation. Symptoms include stinging, tearing, and redness.
SKIN: Can cause skin irritation. Symptoms may include redness and burning of skin, and other skin damage.
SWALLOWING: Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful.
INHALATION: No Data
SYMPTOMS OF EXPOSURE: Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea).
OTHER HEALTH EFFECTS: This material can form dust, which may cause skin or mucous membrane irritation. Symptoms may include redness, burning, and swelling. Although they may cause respiratory tract irritation, nuisance dusts do not form scar tissue or affect the structure in the lungs. Their effects on the tissues are potentially reversible.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek medical attention.

INGESTION: First aid is not normally required. If symptoms develop, seek medical attention.

SKIN CONTACT: First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.

EYE CONTACT: If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek medical attention.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: If needed, use NIOSH/MSHA jointly approved dust respirator. (Ask your safety representative).

VENTILATION SYSTEM: Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV (s).

SKIN PROTECTION: Wear resistant gloves such as: neoprene, wear normal work clothing covering arms and legs.

EYE PROTECTION: Chemical splash goggles in compliance with OSHA regulations also permit other type safety glasses. Consult your safety representative.

PROTECTIVE GLOVES: Wear chemical resistant gloves.

REACTIVITY DATA

STABILITY: Product is stable.

HAZARDOUS DECOMPOSITION PRODUCTS: No data.

HAZARDOUS POLYMERIZATION: Will not occur.

INCOMPATIBILITIES: Avoid contact with: ammonium salts, strong mineral acids.

SPILL OR LEAK PROCEDURES

SMALL SPILL: Sweep up material for disposal recovery.

LARGE SPILL: Use protective clothing and devices as required. Stop spill at source. Scoop or vacuum transfer spilled product to clean containers for recovery. Sweep up unrecoverable product. Transfer sweepings, contaminates soil, and other materials to containers for disposal.

DISPOSAL: Dispose of in accordance with all applicable local, state and federal regulations.

DISTRIBUTED BY: FIVE STAR AFFILIATES
Commerce City, CO.

EMERGENCY TELEPHONE: 1-800-274-5263

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC. **PHONE: 303-287-0186**
6731 E. 50 TH. AVENUE
COMMERCE CITY, CO 80022

MSDS DATE: 4-27-98
REPLACES: New

IDENTIFICATION

PRODUCT NAME: CALCIUM CHLORIDE SOLUTION
COMPOSITION: Calcium Chloride & Deionized Water

HAZARDOUS INGREDIENTS: **%** **TLV LIMIT IN AIR**
None

PHYSICAL DATA

APPEARANCE: Clear to slightly cloudy
ODOR: None
SPECIFIC GRAVITY: 1.100 TO 1.110
BOILING POINT: 220° F.
EVAPORATION RATE: 1 (water = 1)
FLASH POINT: None

FIRE AND EXPLOSION DATA

FLAMMABILITY: Not flammable
EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS: None Known

HEALTH HAZARD DATA

EYE: May cause moderate eye irritation with corneal injury that may be slow to heal.

SKIN: Short exposure not likely to cause irritation. Prolonged contact will cause drying and irritation. Absorption through skin is unlikely. LD 50 for skin absorption is 75000 mg/kg.

INGESTION: Oral LD 50 for rats is a range of 900-2100 mg/kg for calcium chloride on a 100% basis.

EMERGENCY & FIRST AID PROCEDURES

EYE:	Irrigate with cool water running water for 15 minutes. If redness or discomfort develops get medical attention.
SKIN:	Wash off with cool running water.
INGESTION:	If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Call a physician at once.

SPECIAL PROTECTION INFORMATION

EYES:	Always wear safety glasses.
HANDS:	Wear gloves.
FEET:	Boots are recommended.
LOCAL EXHAUST:	Make sure work areas have adequate air exchanges.

REACTIVITY DATA

INCOMPATIBLE MATERIALS:	None known.
STABILITY:	Product is stable.
POLYMERIZATION:	Will not occur.
DECOMPOSITION:	Will not occur.

SPILL OR LEAK PROCEDURES

ENVIRONMENTAL HAZARD: No adverse effects known or suspected. Not a listed toxic chemical under SARA Title III, 302, 304, or 313.

SPILLAGE: Not a RCRA hazardous waste. Dispose of in sewer or land fill according to all federal, state and local regulations.

PREPARED BY:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC. **PHONE: 303-287-0186**
6731 E. 50 TH. AVENUE **MSDS DATE: 1-5-99**
COMMERCE CITY, CO 80022 **REPLACES: New**

IDENTIFICATION

PRODUCT NAME: CALCIUM SULFATE
COMPOSITION:

HAZARDOUS INGREDIENTS

COMPONENT	CAS. NO. %	EXPOSURE LIMITS, PPM OSHA PEL	ACGIH TLV	OTHER LIMIT	HAZARD
CALCIUM SULFATE	7778-18-9 >99	NONE	NONE	NONE	NONE

PHYSICAL DATA

APPEARANCE: White to off-white Powder or Grey to Brown Granules
ODOR: Low or may smell slightly of lignin
SOLUBILITY IN WATER: 0.2%
SPECIFIC GRAVITY: 2.32-2.96
EVAPORATION RATE (Butyl Acetate = 1): Not Applicable
BOILING POINT,°F.: DECOMPOSES 2600
VAPOR PRESSURE, MM HG/20 °C: Not Applicable
pH: No Data Found
% VOLATILE (By Volume): Not Applicable
MELTING POINT, ° F.: Not Given
VAPOR DENSITY (Air = 1): Not Applicable

FIRE AND EXPLOSION DATA

FLAMMABLE LIMITS IN AIR, %
LOWER: N/A
UPPER: N/A
EXTINGUISHING MEDIA: This material is not combustible. Use extinguishing media appropriate for surrounding fire.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None Known
SPECIAL FIRE FIGHTING PROCEDURES: None
FLASH POINT, DEG. F: Non-Combustible
METHOD USED: Not Applicable
AUTOIGNITION TEMPERATURE, DEG. F.: Not Applicable

HEALTH HAZARD DATA

PRIMARY ROUTES OF EXPOSURE: Inhalation, Skin or Eye Contact
SIGNS AND SYMPTOMS OF EXPOSURE:
INHALATION: Breathing Dust May Irritate the Nose and Throat and Cause Coughing and Chest Discomfort.
EYE CONTACT: Dusts May Irritate the Eyes.
SKIN CONTACT: No Irritation is likely after brief contact but may be irritating after prolonged contact.
SWALLOWED: No effects indicated.
CHRONIC EFFECTS OF EXPOSURE: No specific information available.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: None reported.

EMERGENCY & FIRST AID PROCEDURES

INHALATION: Remove to fresh air. Give artificial respiration if not breathing. Get medical attention.

EYE CONTACT: Immediately flush eyes with lots of running water for 15 minute, lifting the upper and lower eyelids occasionally. Get immediate medical attention.

SKIN CONTACT: Immediately flush skin with lots of running water. Remove contaminated clothing and shoes; wash before reuse. Get immediate medical attention.

INGESTION: No procedure indicated.

SPECIAL PROTECTION INFORMATION

VENTILATION: Local mechanical exhaust ventilation capable of minimizing dust emissions at point of use.

RESPIRATORY PROTECTION: If use conditions generate dusts, wear a NIOSH-approved respirator appropriate for those emission levels. Appropriate respirators may be a full facepiece or a half mask air-purifying cartridge respirator with particulate filters, a self-contained breathing apparatus in the pressure demand mode, or a supplied-air respirator.

EYE PROTECTION: Chemical goggles and full-face shield. It is generally recognized that contact lenses should not be worn when working with chemicals because contact lenses may be contribute to the severity of an eye injury.

PROTECTIVE CLOTHING: Long-sleeved shirt, trousers, safety shoes, and gloves.

OTHER PROTECTIVE MEASURES: An eyewash and safety shower should be nearby and ready for use.

REACTIVITY DATA

STABILITY: Stable

CONDITIONS TO AVOID: None

POLYMERIZATION: Will not occur.

MATERIALS TO AVOID: Acids

HAZARDOUS DECOMPOSITION PRODUCTS: SO_2 and CAO above 2600°F.

SPILL OR LEAK PROCEDURES

SPILL: Wear protective equipment including rubber boots, rubber gloves, rubber apron, and a full facepiece or a half mask air-purifying cartridge respirator with particulate filters. Wear chemical goggles if a half mask is worn. For small spills, sweep up and dispose of in DOT-approved waste containers. For large spills, shovel into DOT-approved waste containers; keep out of sewers, storm drains, surface waters, and soil.

Comply with all applicable governmental regulations on spill reporting, and handling and disposal of waste.

DISPOSAL: Dispose of contaminated product and materials used in cleaning up spills or leaks in a manner approved for this material. Consult appropriate Federal, State and Local regulatory agencies to ascertain proper disposal procedures.

Note: Empty containers can have residues, gases and mists and are subject to proper waste disposal, as above.

SPECIAL PRECAUTIONS

STORAGE AND HANDLING PRECAUTIONS: Store in a cool, dry, well-ventilated place away from incompatible materials. Keep bags or fiber drums dry at all times. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing.

REPAIR AND MAINTENANCE PRECAUTIONS: Do not cut, grind, weld, or drill on or near this container.

OTHER PRECAUTIONS: Containers, even those that have been emptied, will retain product residue and vapors. Always obey hazard warnings and handle empty containers as if they were full.

Distributed by:
Five Star Affiliates, Inc.
Commerce City, Co.

Emergency Telephone: CHEMTREC 1-800-424-9300

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY CO 80022

PHONE: 303-287-0186
MSDS DATE: 12-19-97
REPLACES: 04-10-92

IDENTIFICATION

PRODUCT NAME: CITRIC ACID (FOOD GRADE)
COMPOSITION: ALIPHATIC ACID

PHYSICAL DATA

APPEARANCE: White Powder
ODOR: Odorless
SOLUBILITY IN WATER: > 50%
pH 1% SOLUTION: 2.2
VAPOR DENSITY (AIR = 1): N/A Solid
EVAPORATION RATE: 1 (water=1) N/A
VAPOR PRESSURE: N/A Solid
% VOLATILE: N/A
BOILING POINT: N/A Solid
BULK DENSITY:

FIRE AND EXPLOSION DATA

FLAMMABILITY: Ignition Temp. (Powder) 1000-1020° C
EXTINGUISHING MEDIA: Water

UNUSUAL FIRE AND EXPLOSION HAZARDS: None. Explosion Rating - Weak

*** Aqueous solutions of Citric Acid can, if in contact with reactive metal (iron, zinc, or aluminum), form hydrogen which may form explosive mixtures.**

HEALTH HAZARD DATA

ORAL INGESTION: Generally recognized as safe for use in foods.
EYE CONTACT: Considered an irritant of mild organic acids.
INHALATION: Dust may cause mild symptoms of respiratory irritation.
SKIN CONTACT: Mild irritant.
ORAL: orl-rat LD 50: 11.700 mg/kg
DERMAL: skn-rbt 500 mg/ 24 hr moderate
EYE: eye 750 mg/ 24 hr severe

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. Get medical attention as soon as possible.
SKIN CONTACT: Flush with cool running water. If irritation develops get medical attention. Wash clothing before reuse.
INGESTION: Not applicable - material generally recognized as safe.

INHALATION: **Move victim to fresh air.**

SPECIAL PROTECTION INFORMATION

- **Wear approved nuisance dust mask.**
- **Wear standard protective work gloves.**
- **Wear safety glasses.**

REACTIVITY DATA

INCOMPATIBLE MATERIALS: **Metallic nitrates and strong oxidizers.**
STABILITY: **Product is stable.**
POLYMERIZATION: **Will not occur.**
DECOMPOSITION PRODUCTS: **None Known**

SPILL OR LEAK PROCEDURES

SPILL: **Recover by vacuum or broom and shovel. Flush area with water to remove final traces.**

DISPOSAL: **Material collected in drums is an EPA hazardous waste (D002) corrosive. Dispose of it in an EPA approved facility. Comply with all federal, state, and local regulations.**

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 01-11-98
REPLACES: 11-13-90

IDENTIFICATION

PRODUCT NAME: C.M.C. #1
COMPOSITION: BLEND OF SODA ASH, PHOSPHATES, SURFACTANTS AND CHLORINE

HAZARDOUS INGREDIENTS: NONE

PHYSICAL DATA

APPEARANCE: White Powder
ODOR: Sweet, slight chlorine
SOLUBILITY IN WATER: Up to 10%
BULK DENSITY: 1g/ml
pH of 1% SOLUTION: 12.5

FIRE AND EXPLOSION DATA

FLAMMABILITY: Not flammable
EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam
UNUSUAL FIRE AND EXPLOSION DATA: May emit toxic fumes of chlorine or phosphorous oxide with high heat.

HEALTH HAZARD DATA

EYE EFFECT: Eye irritant, can cause damage with prolonged exposure.
SKIN EFFECT: Skin irritant, will cause redness with prolonged exposure.
INHALATION: Dust can be irritating if inhaled.
INGESTION: Can be irritating and cause nausea or diarrhea if eaten.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. Get medical attention.

SKIN CONTACT: Flush with cool running water. If irritation persists get medical attention.

INGESTION: If conscious give a glass of water, milk, egg whites, or gelatin solution. Call a physician

INHALATION: Get to fresh air.

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: Recommended (rubber)

EYE PROTECTION: Recommended (safety glasses or goggles)

RESPIRATORY: Not recommended by general use. If large amount of dust is generated use a dust mask.

LOCAL EXHAUST: Adequate to remove any dust produced.

OTHER EQUIPMENT: As needed to minimize skin exposure.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Acids and Ammonia Compounds

STABILITY: Product is stable.

POLYMERIZATION: Will not occur.

DECOMPOSITION PRODUCTS: May give off phosphorous oxide or chlorine gas in a fire.

SPILL OR LEAK PROCEDURES

SPILL: Wear dust mask and safety equipment. Sweep up material and put into drums. Flush residue to sewer with large amounts of water.

DISPOSAL: Dispose of waste materials used in cleaning up spills in a manner approved for this material. Consult appropriate federal, state and local regulatory agencies to ascertain proper disposal procedures.

Prepared by:_____

CHLORINATED MANUAL CLEANER #1

BENEFITS

1. Penetrates and Lifts Soils
2. Chlorinated - Enhances Removal of Protein Soils
3. Controlled Suds
4. Rinses Freely

DESCRIPTION

CHLORINATED MANUAL CLEANER #1 is a granular, free flowing powder containing chlorine for added cleaning power. CHLORINATED MANUAL CLEANER #1 is recommended as a manual cleaner to remove proteinaceous and fatty soils. An effective blend of detergents and water conditioners provide excellent cleaning results in water supplies of up to 20 grains. The water conditioners allow CHLORINATED MANUAL CLEANER #1 to rinse freely, leaving stainless steel surfaces streak free and shining. CMC is ideal as a manual cleaner in confined areas. It does not give of gas and the controlled sudsing clings to vertical surfaces to continue the cleaning action after the scrubbing is finished.

PROPERTIES

APPEARANCE. . . . . WHITE, FREE FLOWING GRANULAR
ODOR. . . . . SLIGHT CHLORINE
FOAM. . . . . MODERATE - STABLE
AVAILABLE CHLORINE. . . . . 35 PPM @ 1 OZ / GAL
pH @ 0.5 OZ. / GAL. 10.8
pH @ 1.0 OZ. / GAL. 11.3
BIODEGRADABLE. . . . . YES

GENERAL USE DIRECTIONS

Manual applications, Brush or Soak: Use 1/2 oz. to 1 oz. per gallon of water at a temperature of 60°F to 100°F for best results.

High Pressure Cleaning: Use 1 to 2 oz. per gallon at 140^{O}F to 160^{O}F.

Concentrations may vary due to soil loads and local water conditions. After use, equipment must be rinsed thoroughly with potable water.

COMPLIANCE

CHLORINATED MANUAL CLEANER #1 is acceptable to the United States Department of Agriculture as a general cleaning agent in all official meat, poultry, rabbit, and egg processing establishments. Federal law requires a potable water rinse after use of this product.

SAFETY

CHLORINATED MANUAL CLEANER #1 contains mild alkali and chlorine. Do not mix with any acid product. Acid will produce chlorine gas, which is a poison. Store this product in a cool dry place. Heat or excess water will decompose the chlorine.

Rev. 12/98

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE:1-04-99
REPLACES: NEW

IDENTIFICATION

PRODUCT NAME: DEFOAMER 880
COMPOSITION: Hydrogenated fatty acid esters

All ingredients in this product are listed in the T.S.C.A. inventory. No hazardous ingredients known at this time.

PHYSICAL DATA

APPEARANCE: Milky solution, no odor
V.O.C.: None
VAPOR DENSITY: Heavier than air
WGT. PER GALLON: 8.33 pounds
EVAP. RATE: 1.0 x n-Butyl Acetate

LIQUID DENSITY: Same as Water
BOILING POINT: 100-245ºC
SPECIFIC GRAVITY: 1.0
BOILING RANGE: 100-100°C
VOLATILES: vol%: 87.1 **wgt%:** 87.1

FIRE AND EXPLOSION DATA

FLAMMABILITY CLASS:	IIIB
FLASH POINT:	315°C
TOC LEL:	0.00
UEL:	0.00%
EXTINGUISHING MEDIA:	Water fog, dry chemical, carbon dioxide, foam
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None known
SPECIAL FIRE FIGHTING PROCEDURES:	Wear a positive pressure self-contained breathing apparatus.

HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL:	None established
EFFECTS OF OVEREXPOSURE:	Prolonged or repeated exposure may cause slight, transient eye irritation.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION:	Remove to fresh air. Not expected to be an inhalation hazard.
INGESTION:	Dilute with 2-3 glasses of water. Induce vomiting. Get immediate medical attention.
SKIN CONTACT:	Wash thoroughly with soap and water.
EYE CONTACT:	Flush eye with cool running water for at least 15 minutes. If irritation occurs or persists, consult a physician.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	None required under normal conditions of handling and storage.
VENTILATION SYSTEM:	Adequate general area and local exhaust ventilation.
EYE PROTECTION:	Chemical goggles are required.
PROTECTIVE GLOVES:	Impervious rubber gloves
OTHER PROTECTIVE INFORMATION:	Eyewash station and safety shower. Store in a cool, dry place. Keep containers tightly closed. When not in use. Observe good hygiene practices.

REACTIVITY DATA

STABILITY:	Product is stable.
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon dioxide and carbon monoxide
HAZARDOUS POLYMERIZATION:	Will not occur.
INCOMPATIBILITIES:	None known

SPILL OR LEAK PROCEDURES

SPILL:	Dike around large spills to prevent spreading. Collect spilled liquid using an inert chemical absorbent. Place used absorbent and liquid in secure containers for disposal.
WATER DISPOSAL:	Dispose of in accordance with all applicable federal, state, and local regulations. Not a RCRA hazardous waste.

Distributed By: FIVE STAR AFFILIATES
6731 E. 50th Ave.
Commerce City, CO 80022
303-287-0186

Emergency Telephone: 800-424-9300

FERMENTATION DEFOAMER 880
ANTIFOAM AGENT

DEFOAMER 880 is a silicone and mineral oil free antifoam agent, which is very effective due to its particularly spontaneous, defoaming and deaerating properties. DEFOAMER 880 can be administered straight or diluted with water. The dosage should typically be carried out continuously by dosage pump (diaphragm or reciprocating-pump).
The necessary dosage and best possible addition points of DEFOAMER 880 have to be found out by trials, since they depend on factory conditions.

CHEMICAL COMPOSITION

Combination of fatty acid esters.

PROPERTIES	TYPICAL
Appearance	Clear, yellowish liquid
Density [25º C]	approx. 1.01g/ml
Temperature stability	approx. -10ºC to >200ºC
Physiological behavior	Harmless
Viscosity [20ºC]	550-650 cps.
Storage Life	at least 6 months under normal conditions

APPLICATION

Fermentation Defoamer 880 is a silicone and mineral oil free antifoam agent which is very effective due to its particularly spontaneous, defoaming and deaerating properties.

Fermentation Defoamer 880 can be administered straight or diluted with water. The dosage should typically be carried out continuously by a dosage pump (diaphragm or reciprocating-pump).

The necessary dosage and best possible addition points of Fermentation Defoamer 880 have been found out by trials, since they depend on factory conditions.

DEFOAMER 880 complies with FDA regulation 21, CFR 173.340 and may be used in processed foods up to a level of 200 ppm. It is a fatty acid ester derivative. For use in fermentation a level of 4 oz. per 15 bbls. is recommended this will provide a starting level of 60 ppms. The level of use will vary depending on the beer style.

DEFOAMER 880 is non-silicone it is easily removed from fermentors with an alkaline CIP. It will not build up on vessel walls which could depress beer foaming performance.

DEFOAMER 880 is an excellent defoamer for “blow off” barrels. 1 oz. in a barrel will provide excellent foam suppression for 14 days.

Rev. 1/99

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 6-24-98
REPLACES: 02-22-90

IDENTIFICATION

PRODUCT NAME: H.D. CAUSTIC #2
COMPOSITION: Caustic Soda and Chelators

This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENTS:	**%**	**TLV LIMIT IN AIR**
Caustic Soda (CAS 1310-73-2)	90	2mg/m3 (ACGIH)
		2mg/m3 (OSHA)

PHYSICAL DATA

APPEARANCE: White to Yellow solid
ODOR: Sweet/Caustic
SOLUBILITY IN WATER: 50%
pH OF 1% SOLUTION: 13-13.5
BULK DENSITY: 72 lbs./cu. ft.
MELTING POINT: 590° F.

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non-combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic fumes.

EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated, under fire conditions.

NFPA HAZARD RATING: Health 3; Flammability 0; Reactivity1

HEALTH HAZARD DATA

- CAUSES SEVERE BURNS TO SKIN AND EYES. HARMFUL OR FATAL IF SWALLOWED.
- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid any skin contact.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive.
- Do not add this product to hot water or acidic solutions, a violent flashback will occur.
- Do not mix with acids.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure irrigate with saline solution. Get medical attention as soon as possible.

SKIN CONTACT: Flush with cool running water for at least 5-10 minutes. If irritation develops get medical attention.

INGESTION: If conscious, drink large amounts of milk or water, followed by citrus juice or diluted vinegar. Get medical attention immediately. DO NOT induce vomiting.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS: Special ventilation is not required under normal use. Use local exhaust ventilation where dust, mist or spray may be generated.
Note: Where carbon monoxide or other reaction products may be generated, special ventilation may be required.

RESPIRATORY: Respiratory protection is not required under normal use. Use NIOSH/MSHA approved respirator where dust, mist, or spray may be generated.

EYE: Wear chemical safety goggles plus full face shield to protect against splashing.

GLOVES: Chemical Resistant gloves should be worn and may be decontaminated by washing with mild soap and water. Natural and butyl rubber have been suggested.

OTHER CLOTHING AND EQUIPMENT: Impervious protective clothing and chemically resistant safety shoes should be worn to minimize contact. Wash contaminated clothing with soap and water and dry before reuse. Showers and eyewash facilities should be in close proximity.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Acids, soft metals, or any chlorinated or fluorinated hydrocarbons.
STABILITY: Product is stable.
POLYMERIZATION: Will not occur.
DECOMPOSITION PRODUCTS: May give off phosphorous oxide at high heat (fire conditions).

SPILL OR LEAK PROCEDURES

SPILL: Leaks should be stopped. Spills should be contained and cleaned up immediately. Liquid spills should be removed by using a vacuum truck. Solid spills should be scooped up and placed in approved containers for disposal. Neutralize remaining traces of material with any dilute inorganic acid such as hydrochloric, sulfuric, nitric, phosphoric, or acetic acid. The spill area should then be flushed with water followed by liberal covering of sodium bicarbonate. All clean-up material should be removed and placed in approved containers, labeled and stored in a safe place to await proper treatment and disposal. Spills on areas other than pavement, e.g. dirt or sand, may be handled by removing the affected soils and placing in approved containers. Persons performing clean-up work should wear adequate personal protective equipment and clothing. Spills or releases should be reported if required, to the appropriate local, state, and federal regulatory agencies.

CAUTION: H.D. #2 may react violently with acid water.

DISPOSAL: The materials resulting from clean-up operations may be hazardous waste and, therefore, subject to specific regulations. Package, storage, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state, and local health environmental regulation. Shipments of waste materials are subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state and local agencies receive proper notification of spill and disposal methods.

TRANSPORTATION

DOT HAZARD CLASSIFICATION: Sodium Hydroxide, Solid, Mixture
8, UN1823, PG II
US DOT LABEL: Corrosive, UN1823, Class 8
LABEL REQUIRED: Corrosive, Class 8, Label as required by OSHA Hazard Communication Standard, and any applicable state and local regulations.

H.D. CAUSTIC #2

BENEFITS

1. Chelated - Boost Cleaning Action
2. Rinses Easily and Quickly
3. Retards Scale Formation
4. High Detergency with Low Foam
5. Powerful Cleaning Action

DESCRIPTION

H.D. CAUSTIC #2 is a chelated crystal alkali compound especially formulated for the removal of burned-on fatty soils. The sequestrants and detergent in combination with strong alkali provide powerful soil penetration, digestion, emulsification, suspension, and free rinsing properties. Low foaming H.D. CAUSTIC #2 can be used in hydro and soaker type equipment and for CIP cleaning of hot process equipment. By controlling water hardness, H.D. CAUSTIC #2 will retard scale formation promoting more efficient equipment operation. H.D. CAUSTIC #2 is recommended for use in spray washers and for cleaning pasteurizers, evaporators, and heat exchange surfaces. As a brewery cleaner, it is ideal as a kettle and lauder tun cleaner.

PROPERTIES

APPEARANCE	OFF WHITE GRANULAR
ODOR	SLIGHT
FOAM	LOW
WETTING	EXCELLENT
pH @ 1 OUNCE / GALLON	13.2
pH @ 2 OUNCES / GALLON	13.5
BIODEGRADABLE	YES

GENERAL USE DIRECTIONS

H.D. CAUSTIC #2 is readily and completely soluble, forming concentrated solutions up to 35% by weight. Each ounce per gallon will equal 0.9% causticity.

Application	Ozs. /Gal.	Temp. Range	Time	Method
Kettles	½-2	160-212°F	20-30 min.	Circulate
Fryers	2-8	212°F	45-90 min.	Boil
CIP & HTST	½-2	140-200°F	30-60 min.	Circulate
Smokehouses	1-4	80-100°F	1-5 min.	Foam
Hooks and Trolleys	4-8	140-180°F	5-15 min.	Soak
Foam Cleaning	4-8	80-100°F	1-5 min.	Foam
Bottle Washing	4-8	140-160°F	3-7 min.	Soak

COMPLIANCE

H.D. CAUSTIC #2 is authorized by the U.S. Department of Agriculture for use as a cleaning agent in official meat, poultry, rabbit, and egg processing establishments, under the "A" category. After use, equipment must be rinsed with potable water.

SAFETY

H.D. CAUSTIC #2 contains caustic soda, which causes severe burns. See product label for more precautionary information.
Avoid contact with skin and eyes. Do not get on clothing. Rinse thoroughly after use. Avoid breathing dust. Wear protective clothing when handling this product: gloves, goggles and boots. DO NOT MIX WITH ACIDS, A VIOLENT REACTION WILL OCCUR. DO NOT ALLOW THIS PRODUCT TO COME INTO CONTACT WITH ALUMINUM, HYDROGEN GAS, AN EXPLOSION WILL OCCUR.
For skin and eye contact, flush with cool running water for at least 15 minutes. For eye contact, also irrigate with saline solution for one hour. Seek medical attention.
For ingestion, dilute by drinking large amounts of milk. If milk is not available, use water. Do not induce vomiting. Seek medical attention immediately.

rev.12/98

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50 TH. AVENUE
COMMERCE CITY, CO 80022

PHONE: 303-287-0186
MSDS DATE: 10-22-98
REPLACES: New

IDENTIFICATION

PRODUCT NAME: IO-STAR II
COMPOSITION: IODOPHOR SANITIZER

This product requires submission of an annual report on the release of toxic chemicals that appear in 40CFR 372 (of SARA 313). Components present in this product, at a level which could require reporting under this statute are:

HAZARDOUS INGREDIENTS:	%	ACGIH TLV
IODINE (CAS 7553-56-2)	3.5 %	1 mg/m³
Phosphoric Acid (CAS 7664-38-2)	24.7 %	1 mg/m³

PHYSICAL DATA

APPEARANCE: Dark Brown Liquid
ODOR: Mild Iodine
SOLUBILITY IN WATER: Complete
pH: 1.5
EVAPORATION RATES: 1 (water = 1)
BOILING POINT: 213° F
SPECIFIC GRAVITY: 1.234
VAPOR PRESSURE: 24 mm Hg.

FIRE AND EXPLOSION DATA

FLAMMABILITY: Not flammable
EXTINGUISHING MEDIA: Water or Carbon Dioxide, Powder
UNUSUAL FIRE AND EXPLOSION HAZARDS: May emit toxic fumes of Iodine and Phosphorous Oxide if heated to decomposition. Contact with soft metals can liberate hydrogen gas which is flammable and explosive.
FIRE RATING: Toxicity 2; Fire 0; Reactivity 0

HEALTH HAZARD DATA

DANGER: Corrosive. Causes skin and eye burns. Contains Phosphoric Acid and Iodine. Prolonged contact may result in severe burns to skin, eyes, and mucous membranes. Avoid contact with skin, eyes and mucous membranes. Harmful if swallowed. Ingestion may result in irritation and damage to gastrointestinal tract.

PRIMARY ROUTES OF INJURY: Ingestion and skin contact.

EMERGENCY & FIRST AID PROCEDURES

EYE: Flush with cool running water for 15 minutes. Get medical attention.
SKIN: Flush with cool running water. If irritation develops get medical attention.

INGESTION: Promptly drink large quantities of milk, egg whites, gelatin solution or water. Do not induce vomiting get medical attention immediately.

SPECIAL PROTECTION INFORMATION

EYES: Recommended (rubber, PVC)
HANDS: Recommended (goggles, face shield)
VENTILATION: Adequate
OTHER EQUIPMENT: Protective clothing (acid proof) recommended when handling large quantities or if exposure is prolonged.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Reducing agents, alkalis, strong oxides, chlorinated products.
STABILITY: Product is stable.
POLYMERIZATION: Will not occur.
DECOMPOSITION PRODUCTS: May give off iodine and phosphorous oxide vapors with high temperatures. Will emit chlorine gas if mixed with chlorinated products.

SPILL OR LEAK PROCEDURES

SPILL: Neutralize with soda ash or sodium bicarbonate. Put into drums. Flood area with large quantities of water. For small spills wash to sewer in accordance with federal, state and local regulations.

STORAGE PRECAUTIONS: Avoid contamination's of food or feed stuffs. Keep container closed when not in use. Dot not store below 0° F. or above 100° F. for extended periods of time. Do not reuse containers. Triple rinse, puncture, and dispose of contain in a sanitary landfill or by incineration.

DISPOSAL: Wastes resulting from use of this product may be disposed of on site or at an approved waste disposal facility.

SIGNS AND SYMPTOMS OF EXPOSURE: Prolonged absorption may produce "Iodism" which is manifested by skin rash, running nose, headache and irritation of mucous membranes.

D. O. T. Shipping Name: Corrosive Liquid N.O.S.
8, UN –1760, PG II
(Contains Phosphoric Acid)

PREPARED BY:_____

IO-STAR-II
GERMICIDE SANITIZER

BENEFITS

1. Concentrated low foam.
2. Economical dilution ratio.
3. Controls water hardness.
4. Self-indicating.

DESCRIPTION

IO-STAR II is a highly concentrated iodophor formulation featuring low foam, fast drainage and a high acid content. The high acid content promotes high anti-microbial control. IO-STAR II is equally formulated for use by the bottling, food processing, and the milk industry. When used continuously as a sanitizing spray on walls and equipment it will reduce or eliminate odors throughout the processing area. IO-STAR II is effective against E Coli and S Typhosa as well as most mold and yeast. With the added phosphoric acid in this product, at 25 ppm concentration of titratable iodine contains enough phosphoric acid to make IO-STAR II an effective final rinse sanitizer. At the 25 ppm titratable iodine level, IO-STAR II does not require a potable water rinse.

PROPERTIES

APPEARANCE……..…....……..……...…DARK BLUE to BLACK
ODOR……...……..…TYPICAL IODINE
pH @ 1 ounce per 5 gallons…..……2.2
AvI_2 @ 1 ounce per 5 gallons……..…….25 ppm
FOAM……..……MODERATE

GENERAL USE DIRECTIONS

USE DILUTION TABLE
1/2 ounce IO-STAR II/ 10 gallons water=12.5 ppm AvI_2
1 ounce IO-STAR II/ 10 gallons water=25 ppm AvI_2
2 ounces IO-STAR II/ 10 gallons water=50 ppm AvI_2

CIP SANITIZING: Use 25 ppm IO-STAR II to flood lines and circulate in tanks. A potable water rinse is required after use.

Use 12.5 ppm IO-STAR II in lines and equipment when a slight sanitizing solution is desired between filling operation. A potable water rinse is required after use.

COMPLIANCE

IO-STAR II is a registered pesticide by the EPA. A potable water rinse is required after each use.

SAFETY

DANGER: CORROSIVE, CAUSES EYE DAMAGE AND SKIN IRRITATION. HARMFUL IF SWALLOWED. Do not get in eyes, on skin or on clothing. Avoid contamination of food. Wear goggles and rubber goggles and rubber gloves when handling. Avoid breathing fumes or vapors. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse.

STATEMENT OF PRACTICAL TREATMENT
IF SWALLOWED: Promptly drink a large quantity of water. Do not induce vomiting. Avoid alcohol. Get medical attention.

IF IN EYES: Flush with plenty of water for 15 minutes. Get medical attention.

IF ON SKIN: Wash with plenty of soap and water. Get medical attention if irritation persists.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

Store this product in a cool dry area. Do Not allow it to freeze.

Rev. 04/99

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50 TH. AVENUE
COMMERCE CITY, CO 80022

PHONE: 303-287-0186
MSDS DATE: 11-14-90
REPLACES: 07-14-90

IDENTIFICATION

PRODUCT NAME: IO-STAR
COMPOSITION: IODOPHOR SANITIZER

HAZARDOUS INGREDIENTS:	**%**	**ACGIH TLV**
IODINE	1.6	1 mg/m

PHYSICAL DATA

APPEARANCE: Dark Brown Liquid
SOLUBILITY IN WATER: Complete
EVAPORATION RATES: 1 (water = 1)
SPECIFIC GRAVITY: 1.028

ODOR: Mild Iodine
pH: 1.5
BOILING POINT: 213° F
VAPOR PRESSURE: 24 mm Hg.

FIRE AND EXPLOSION DATA

FLAMMABILITY: Not flammable
EXTINGUISHING MEDIA: Water or Carbon Dioxide
UNUSUAL FIRE AND EXPLOSION HAZARDS: May emit toxic fumes of Iodine with high heat. (Fire)

HEALTH HAZARD DATA

EYE: Moderate eye irritation
SKIN: Mild skin irritation
ACUTE ORAL TOXICITY: LD-50 (rats 21.6 ml/kg)

EMERGENCY & FIRST AID PROCEDURES

EYE: Flush with cool running water for 15 minutes. Get medical attention.
SKIN: Flush with cool running water. If irritation develops get medical attention.
INGESTION: Promptly drink large quantities of milk, egg whites, gelatin solution or water. Get medical attention immediately.

SPECIAL PROTECTION INFORMATION

EYES: Recommended (rubber, PVC)
HANDS: Recommended (goggles, face shield)
VENTILATION: Adequate

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Reducing agents, alkalis, strong oxides, chlorinated products.
STABILITY: Product is stable.
POLYMERIZATION: Will not occur.
DECOMPOSITION PRODUCTS: May give off iodine vapors with high temperatures. There are not hazardous decomposition products under normal circumstances.

SPILL OR LEAK PROCEDURES

SPILL: Neutralize Iodine with Sodium Thiosulfate or Sodium Sulfate. Put into drums. Floor area with large quantities of water. For small spills wash to sewer in accordance with federal, state and local regulations.

STORAGE PRECAUTIONS: Avoid contamination's of food or feed stuffs. Keep container closed when not in use. Dot not store below 0° F. or above 100° F. for extended periods of time. Do not reuse containers. Triple rinse, puncture, and dispose of contains in a sanitary landfill or by incineration.

DISPOSAL: Wastes resulting from use of this product may be disposed of on site or at an approved waste disposal facility.

SIGNS AND SYMPTOMS OF EXPOSURE: Prolonged absorption may produce "Iodism" which is manifested by skin rash, running nose, headache and irritation of mucous membranes.

PREPARED BY:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

IO-STAR

BENEFITS

1. Easy to use.
2. Economical dilution ratio.
3. Controls water hardness.
4. Self-indicating.

DESCRIPTION

IO-STAR is equally formulated for use by the bottling, food processing, and milk industry. When used continuously as a sanitizing spray on walls and equipment it will reduce or eliminate odors throughout the processing area. IO-STAR is effective against E Coli and S Typhosa as well as most mold and yeast.

PROPERTIES

APPEARANCE……..…....……...……...…DARK BLUE to BLACK
ODOR……...……..…TYPICAL IODINE
pH @ 1 ounce per 5 gallons….……2.2
AvI_2 @ 1 ounce per 5 gallons……..…….25 ppm
FOAM……..……MODERATE

GENERAL USE DIRECTIONS

USE DILUTION TABLE
1 ounce IO-STAR / 10 gallons water=12.5 ppm AvI_2
1 ounce IO-STAR / 5 gallons water=25 ppm AvI_2
2 ounces IO-STAR / 5 gallons water=50 ppm AvI_2

CIP SANITIZING: Use 25 ppm IO-STAR to flood lines and circulate in tanks. After 5 minutes contact, drain off solution. Do not rinse.

Use 12.5 ppm IO-STAR in lines and equipment when a slight sanitizing solution is desired between filling operation. After 10 minutes contact, drain off solution. A potable water rinse is not required after use.

COMPLIANCE

IO-STAR is a registered pesticide by the EPA. A potable water rinse is not required after each use, when used at or under 25 ppm.

SAFETY

CAUTION: Avoid contact with food. Causes moderate eye injury. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling.

If swallowed, promptly drink large quantities of water. Do not induce vomiting. Avoid drinking alcohol. Get medical attention immediately.

If skin or eye contact occurs, flush with cool running water for at least 15 minutes. If irritation develops get medical attention.

Store this product in a cool dry area. Do not allow it to freeze.

Rev. 04/99

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE:1-04-99
REPLACES: NEW

IDENTIFICATION

PRODUCT NAME: KETTLE DEFOAMER 105 (KFO™ 105)
COMPOSITION: 10% Silicone, 10% Nonionic Surfactant

All ingredients in this product are listed in the T.S.C.A. inventory. No hazardous ingredients known at this time.

PHYSICAL DATA

APPEARANCE: White emulsion
V.O.C.: None
VAPOR DENSITY: Non Volatile
WGT. PER GALLON: 8.33 pounds

LIQUID DENSITY: Same as Water
BOILING POINT: 100-245ºC
SPECIFIC GRAVITY: 1.0

FIRE AND EXPLOSION DATA

FLAMMABILITY CLASS: IIIB
FLASH POINT: >200ºf
EXTINGUISHING MEDIA: Water spray, Carbon Dioxide, Dry Chemical, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS: None known
SPECIAL FIRE FIGHTING PROCEDURES: Wear a positive pressure, self-contained breathing apparatus.
HAZARD RATING: Health-0; Fire-1; Reactivity-0; Personal Protection-B

HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL: None established
EFFECTS OF OVEREXPOSURE: May cause slight transient eye and/or skin irritation.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Remove to fresh air.
INGESTION: DO NOT INDUCE VOMITING. Get medical attention.
SKIN CONTACT: Wash thoroughly with soap and water.
EYE CONTACT: Flush eye with cool running water for at least 15 minutes. If irritation occurs or persists, consult a physician.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: None required under normal conditions of handling and storage.
VENTILATION SYSTEM: Adequate general area and local exhaust ventilation.
SKIN PROTECTION: If skin or contamination of clothing is likely, protective clothing should be worn.
EYE PROTECTION: Chemical goggles are required.
PROTECTIVE GLOVES: Wear chemical resistant gloves.
OTHER PROTECTIVE INFORMATION: Eyewash station and safety shower. Store in a cool, dry place. Observe good industrial hygiene practices. Keep containers closed when not in use.

REACTIVITY DATA

STABILITY:	Product is stable.
HAZARDOUS DECOMPOSITION PRODUCTS:	Silicon dioxide, carbon monoxide and carbon dioxide.
HAZARDOUS POLYMERIZATION:	Will not occur.
INCOMPATIBILITIES:	Strong oxidizers.

SPILL OR LEAK PROCEDURES

SPILL:	Dike around large spills to prevent spreading. Collect spilled liquid using an inert chemical absorbent. Place used absorbent and liquid in secure containers for disposal.
WATER DISPOSAL:	Dispose of in accordance with all applicable federal, state, and local regulations.

Distributed By: FIVE STAR AFFILIATES
6731 E. 50th Ave.
Commerce City, CO 80022
303-287-0186

Emergency Telephone: 800-424-9300

KETTLE DEFOAMER 105
10% SILICONE Food Grade Antifoam

KETTLE DEFOAMER 105 is a 10% silicone food-grade emulsion designed to control foam in most aqueous systems. The functional properties especially developed to prevent and eliminate excessive foam include quick dispersibility, slight insolubility, relative stability, and spreadability, in the foaming system. All emulsifiers used in KETTLE DEFOAMER 105 are nonionic.

TYPICAL PROPERTIES

Appearance 20°C.	White Emulsion
pH	6-8
Emulsifier	Nonionic
Specific Gravity (20° C)	1.0
Solubility in water	Dispersible
Silicone content	10%

APPLICATION

KETTLE DEFOAMER 105 is formulated to comply with FDA regulation 21, CFR 173.340 and so may be used in processing food up to a level which results in no more than 10 ppm of silicone in the finished food. The use of diluted KETTLE DEFOAMER 105 in food processes should allow for the fact KETTLE DEFOAMER 105 contains 10% silicone fluid. For example, a 5% active dilution of KETTLE DEFOAMER 105 with one part of water may be used at a maximum level of 200 ppm in the finished food.
To prevent over boil in the kettle, a starting concentration of 8 oz. per 7 bbls. Is recommended. This will produce a concentration of 28 ppm's of defoamer. The concentration will vary depending on the severity of the boil, type of sweet wort, and kettle configuration.

STORAGE

10% SILICONE DEFOAMER contains water; freezing should be prevented. The product has a shelf life of approximately six months if stored between 5 Deg. C. -35 Deg. C. It is recommended that the product is stirred before use to assure uniformity of emulsion.

rev. 12/98

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 01-05-98
REPLACES: 11-06-96

IDENTIFICATION

PRODUCT NAME: LACTIC ACID 88% (Food Grade)
COMPOSITION: ORGANIC ACID

This product does not contain a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

HAZARDOUS INGREDIENTS:	%	TLV LIMIT IN AIR
Lactic Acid (CAS 50-21-5)	88	None
Water (CAS 7732-18-5)	12	None

PHYSICAL DATA

APPEARANCE: Yellow to Colorless Liquid
ODOR: Odorless
SOLUBILITY IN WATER: Complete
pH CONCENTRATE: 1
BOILING POINT: Decomposes
SPECIFIC GRAVITY: 1.20 @ 77° F (25° C)
FLASH POINT: Nonflammable
MOLECULAR WEIGHT: 90.1

FIRE AND EXPLOSION DATA

FLAMMABILITY: Auto-Ignition Temp.- Nonflammable.
Flammable Limits (In Air Volume): Lower- No Data
Upper- No Data

EXTINGUISHING MEDIA: Residue may burn in presence of strong ignition source after the water has evaporated. Should this occur, Use water spray, foam, dry chemical or carbon dioxide.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Carbon Monoxide, Carbon Dioxide, and smoke will be produced if residue is burned.

SPECIAL FIREFIGHTING DATA: Firefighters and others who may be exposed to products of combustion should wear full protective clothing and self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

HEALTH HAZARD DATA

HUMAN EXPERIENCE

Dermal contact and inhalation are expected to be the primary routes of occupational exposure to 88% Lactic Acid. Lactic Acid is considered to be corrosive to the eyes and severely irritating to the skin. Prolonged contact with liquid may produce skin burns. If ingested, 88% Lactic Acid solution can burn the mouth, throat, and stomach and may cause sweating, nausea, vomiting, shortness of breath, and vascular collapse. Exposure to Lactic Acid mist can cause eye and respiratory tract irritation with coughing. Lactic Acid is used in medical preparations for its mild antiseptic properties., though in the United States its use is limited primarily as food additive.

ANIMAL DATA

Data from toxicity studies and from the available scientific literature indicate the following:
88% Lactic Acid
Oral LD50 (Rat): 7600 mg/kg, Practically Nontoxic

Dermal LD50 (Rabbit): > 7940 mg/kg, Practically Nontoxic
Eye Irritation (Rabbit, 24-hr): (FSHA) Corrosive
Shin Irritation (Rabbit, 24-hr): (FSHA) 5.5 on a scale of 8.0, Severely Irritating

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EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with cool running water for at least 15 minutes. Call a physician.

SKIN CONTACT: Immediately flush with cool running water for at least 5-10 minutes. Remove contaminated clothing. Wash clothing before reuse.

INGESTION: If conscious or when consciousness returns, give two glasses of milk or water. DO NOT induce vomiting. Never give anything by mouth to an unconscious person.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing. If breathing is difficult, give oxygen.

SPECIAL PROTECTION INFORMATION

EYE PROTECTION: Wear chemical splash goggles and have eye baths immediately available at locations where there is potential for eye contact.

SKIN PROTECTION: Wear appropriate protective gloves and protective clothing that provides a barrier to prevent skin contact. Consult glove manufacturer to determine type of glove for given application. Wear a face shield and an apron that provides a barrier when splashing is likely. Wash contaminated skin before reuse. Wash thoroughly after handling.

RESPIRATION PROTECTION: Avoid breathing mist and/or vapor. Use NIOSH/MSHA approved equipment when airborne exposure limits are exceeded (see below). Consult respirator manufacturer to determine appropriate type of equipment for given application. The respirator use limitations specified by NIOSH/MSHA and the manufacturer must be observed. High airborne concentrations may require use of self-contained breathing apparatus or supplied air respirator. Respiratory protection programs must be in compliance with 29 CFR 1910.134.

VENTILATION: Provide sufficient ventilation to control exposure levels below airborne exposure limits (see below). Use local mechanical exhaust ventilation at sources of air contaminated such as open process equipment. Consult current NFPA Standard 91 and ACGIH manual on Industrial Ventilation for design of exhaust system.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Mild Steel.

STABILITY: Product is stable.

POLYMERIZATION: Will not occur.

DECOMPOSITION PRODUCTS: No uniquely hazardous decomposition products are expected. If the product is burned, as with any organic material, carbon monoxide, carbon dioxide, smoke and soot can be produced.

SPILL OR LEAK PROCEDURES

SPILL: Keep people away and upwind from the spill or leak. Shut off the leak. Insure adequate ventilation. If it is necessary that persons enter the spill area, they must wear self-contained breathing apparatus and approved protective clothing including boots. Transfer spilled material into a salvage tank and absorb spilled material with commercial absorbing material, sweeping compound or sand. Keep spilled material out of sewers, watersheds and water systems. Use water spray to knock down vapor. Run-off to sewers may create health or explosion hazards; notify fire, health and appropriate regulatory pollution control authorities. To dispose of spilled material, follow suggestions given under “Waste Disposal,” below.

WASTE

DISPOSAL: Material collected in drums is an EPA hazardous waste (D002) corrosive. Dispose of it in an EPA approved facility. Comply with all federal, state, and local regulations. This material should not be dumped, spilled or flushed into sewers, public waterways or the environment.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE:3/22/99
REPLACES: NEW

IDENTIFICATION

PRODUCT NAME: BEST CLEANER
COMPOSITION: Phosphated, Anionic, Nonionic Detergent

HAZARDOUS INGREDIENTS: None

PHYSICAL DATA

APPEARANCE: Clean
ODOR: Mild
EVAPORATION RATE: 1 (Water =1)
BOILING POINT: 220 ° F.
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.055
pH CONCENTRATE: 11

FIRE AND EXPLOSION DATA

FLAMMABILITY: **Not flammable**
EXTINGUISHING MEDIA: **Water, carbon dioxide, foam**
UNUSUAL FIRE & EXPLOSION HAZARDS: **None Known**

HEALTH HAZARD DATA

EYE EFFECT: **Contact with eye is painful and irritating.**
SKIN EFFECT: **Prolonged contact may cause irritation.**
INGESTION: **If swallowed, consult a physician.**
INHALATION: **No effect known (non-fuming)**

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: **Flush eye with cool running water for a least 15 minutes. Get medical attention.**
SKIN CONTACT: **Flush with cool water. If irritation develops, get medical attention.**
INGESTION: **If conscious, give several glasses of water or milk. Get medical attention.**

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: **Recommended (rubber, PVC)**
EYE PROTECTION: **Recommended (goggles, safety glasses)**
LOCAL EXHAUST: **No special ventilation required.**
OTHER EQUIPMENT: **Not required.**

REACTIVITY DATA

INCOMPATIBLE MATERIALS: **Cationic materials**
STABILITY: **Product is stable**
POLYMERIZATION: **Will not occur**
DECOMPOSITION PRODUCTS: **None known**

SPILL OR LEAK PROCEDURES

SPILL: **Contain all spills and leaks to prevent discharge into the environment. Soak up with absorbent, shovel into waste containers, flush with water.**

DISPOSAL: **Remove material or dispose of (incineration is preferred) in accordance with all applicable federal, state and local regulations. Material collected with absorbent may be disposed of in a permitted landfill in accordance with federal, state and local regulations.**

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 1-800-535-5053

LIQUID BEST CLEANER

BENEFITS

1. Highly concentrated
2. Effective in hard water
3. Versatile
4. Free rinsing

DESCRIPTION

LIQUID BEST CLEANER was developed for a major brewery to be a universal manual cleaner. It is highly concentrated providing economical use dilutions. In spray gun applications it cuts through white grease at concentrations as low as 0.1% leaving surfaces clean and spot free. As a manual cleaner its detergent action makes it extremely easy to remove heavy soils with little scrubbing.
As a foam cleaner it is an ideal choice for a safe yet effective external stainless steel cleaner.

PROPERTIES

APPEARANCE……...…….ROSE COLORED LIQUID
FOAM…..……...……THICK AND STABLE pH of a 1% SOLUTION…….……12.0
WETTING...……..…….……....EXCELLENT
BIODEGRADABLE……..……YES

GENERAL USE DIRECTIONS

Through a block foamer apply LIQUID BEST CLEANER straight from container onto surface to be cleaned. If a tank foamer is used, prepare a concentration of 1 qt. LIQUID BEST CLEANER per gallon of water and then charge the tank with the required air pressure. Allow the foam to be in contact with surfaces to be cleaned for 5 to 10 minutes. Pressure of rinse or flood area with potable water.

Used as high pressure cleaner, use at a rate of 1 gallon per 50 gallons of water. After use, rinse with potable water.

LIQUID BEST CLEANER can be used manually at concentrations of 3-6 oz. per gallon of water.

SAFETY

LIQUID BEST CLEANER is a concentrated phosphated surfactant. Prolonged contact with skin will produce irritation. Contact with eyes will be irritating and painful. If contact occurs, flush with cool running water for at least 15 minutes. Seek medical attention.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 06-24-98
REPLACES: 12-19-97

IDENTIFICATION

PRODUCT NAME: LIQUID CIRCULATION CLEANER #1
COMPOSITION: CAUSTIC SODA AND CHELATORS

This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENTS:	**%**	**TLV LIMIT IN AIR**
Caustic Soda (CAS 1310-73-2)	38	2 mg/m3 (ACGIH)
		2 mg/m3 (OSHA)

PHYSICAL DATA

APPEARANCE: Light Amber liquid
ODOR: Odorless
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.400
EVAPORATION RATE: 1 (water=1)
BOILING POINT: 220 ° F.
VAPOR PRESSURE: 24 mg. Hg.
pH OF CONCENTRATE: 13.3-13.6

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non-combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic fumes.

EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated.

NFPA HAZARD RATING: Health 3; Flammability 0; Reactivity 0

HEALTH HAZARD DATA

- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid contact with skin and eyes.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive.
- Do not add to hot water or hot alkali solutions, or a violent flash back will.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure irrigate with saline solution. Get medical attention as soon as possible.

SKIN CONTACT: Flush with cool running water for at least 5-10 minutes. If irritation develops get medical attention.

INGESTION: If conscious, give several glasses of milk, water, egg whites or gelatin solution. Get medical attention immediately. DO NOT induce vomiting.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS: Special ventilation is not required under normal use. Use local exhaust ventilation where dust, mist or spray may be generated.
Note: Where carbon monoxide or other reaction products may be generated, special ventilation may be required.

RESPIRATORY: Respiratory protection is not required under normal use. Use NIOSH/MSHA approved respirator where dust, mist, or spray may be generated.

EYE: Wear chemical safety goggles plus full face shield to protect against splashing.

GLOVES: Chemical Resistant gloves should be worn and may be decontaminated by washing with mild soap and water. Natural and butyl rubber have been suggested.

OTHER CLOTHING AND EQUIPMENT: Impervious protective clothing and chemically resistant safety shoes should be worn to minimize contact. Wash contaminated clothing with soap and water and dry before reuse. Showers and eyewash facilities should be in close proximity.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Acids, soft metals, and chlorinated or fluorinated hydrocarbons.
STABILITY: Product is stable.
POLYMERIZATION: Will not occur.
DECOMPOSITION PRODUCTS: None Known.

SPILL OR LEAK PROCEDURES

SPILL: Leaks should be stopped. Spills should be contained and cleaned up immediately. Liquid spills should be removed by using a vacuum truck. Solid spills should be scooped up and placed in approved containers for disposal. Neutralize remaining traces of material with any dilute inorganic acid such as hydrochloric, sulfuric, nitric, phosphoric, or acetic acid. The spill area should then be flushed with water followed by liberal covering of sodium bicarbonate. All clean-up material should be removed and placed in approved containers, labeled and stored in a safe place to await proper treatment and disposal. Spills on areas other than pavement, e.g. dirt or sand, may be handled by removing the affected soils and placing in approved containers. Persons performing clean-up work should wear adequate personal protective equipment and clothing. Spills or releases should be reported if required, to the appropriate local, state, and federal regulatory agencies.

CAUTION: L.C.C. #1 may react violently with acid water.

DISPOSAL: The materials resulting from clean-up operations may be hazardous waste and, therefore, subject to specific regulations. Package, storage, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state, and local health environmental regulation. Shipments of waste materials are subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state and local agencies receive proper notification of spill and disposal methods.

TRANSPORTATION

DOT HAZARD CLASSIFICATION: Sodium Hydroxide Solution
8, UN1824, PG II
PLACARD REQUIRED: Corrosive, UN1824, Class 8
LABEL REQUIRED: Corrosive, Class8, Label as required by OSHA Hazard Communication Standard, and any application state and local regulations.

Prepared by:_____

FIVE STAR AFFILIATES

Five Star Brewery Services L.L.C.
Five Star Chemical Company
Five Star Food Grade L.L.C.
Five Star Packaging & Equipment L.L.C.
Five Star Products & Services L.L.C.

Five Star Affiliates, Inc.
6731 East 50th Avenue
Commerce City, CO 80022
(303) 287-0186 • (800) 782-7019
Fax (303) 287-0391

"Leaders in Cleaning Technology since 1980"

LIQUID CIRCULATION CLEANER
HEAVY DUTY ALKALI

BENEFITS

1. Automated CIP Cleaner
2. Low Foam
3. Fast Soil Penetration
4. Emulsifies Fats, Grease, and Oils
5. For Hot and Cold Process Surfaces

DESCRIPTION

LIQUID CIRCULATION CLEANER is a concentrated alkaline CIP cleaner designed for automatic dispensing into re-circulation CIP systems or "single service" CIP systems. High detergency and low foaming enhance cleaning performance and retard the formation of air pockets caused by foam in low velocity areas in circulation systems. LIQUID CIRCULATION CLEANER quickly penetrates soils and emulsifies fat, grease, and oil residues, "cook - on" or "burn - on" from process surfaces. LIQUID CIRCULATION CLEANER has a blend of 2 different chelators, which reduces or eliminates beer stone formation. Its unique blend of alkali allows it to withstand storage temperatures as low as 32°F without freezing. This allows LIQUID CIRCULATION CLEANER to be stored in areas where most caustic cleaners cannot.

PROPERTIES

APPEARANCE	OFF YELLOW, SEMI VISCOUS LIQUID
ODOR	SLIGHT, TYPICAL
FOAM	LOW
WETTING	GOOD

GENERAL USE DIRECTIONS

LIQUID CIRCULATION CLEANER is recommended for use in "hot" and "cold" process CIP cleaning circuits.

Brew Kettles and Lauter Tuns: Use 2 ounces per gallon of water for single brew cleaning. For multiple brew cleaning use 3 ounces per gallon of water. Circulate for 30 to 40 minutes at temperatures between 160° and 180° F. Rinse with potable water after use.

HTST & Heat Exchangers: Use 3 to 4 ounces per gallon of water, circulate for 30 minutes at 180° F. Rinse with potable water after use.

CIP: Use 1 to 2 ounces per gallon of water. Circulate for 25 to 35 minutes at temperatures between 160° and 180° F. Rinse with potable water after use.

COMPLIANCE

LIQUID CIRCULATION CLEANER is authorized by the U.S. Department of Agriculture for use in soak or with steam and mechanical devices in official meat, poultry, rabbit, and egg processing establishments. After use, surfaces must be rinsed with potable water.

SAFETY

DANGER: Contains Sodium Hydroxide. Corrosive to skin and eyes. Do not get on clothing. Rinse thoroughly after use. DO NOT MIX WITH ACIDS, A VIOLENT REACTION WILL OCCUR. Wear protective gloves, goggles, and clothing when handling this product.

For skin or eye contact, flush with plenty of cool water for at least 15 minutes. If eye contact occurs, seek medical attention immediately. Eye should be irrigated with saline solution for at least one hour.

For ingestion dilute by drinking large amounts of milk, if milk is not available use water. Do not induce vomiting. Seek medical attention immediately.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 4-6-99
REPLACES: 08-05-97

IDENTIFICATION

PRODUCT NAME: **LUBE C**
COMPOSITION: **ANI0NIC SOAP**

PHYSICAL DATA

APPEARANCE: CLEAR TO YELLOW
ODOR: SOAP
pH of CONCENTRATE: 9 to 9.5
VAPOR PRESSURE :Unknown
VISCOSITY: 11 cps
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.003
BOILING POINT: 190 F

FIRE AND EXPLOSION DATA

FLAMMABILITY: **Not flammable**
EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS: **NONE KNOWN**

HEALTH HAZARD DATA

EYE EFFECT: Contact with eye is painful and irritating.
SKIN EFFECT: Prolonged contact may cause irritation.
INGESTION: If swallowed, consult a physician.
INHALATION: Take to fresh air.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: **Flush eye with cool running water for at least 15 minutes. Get medical attention.**
SKIN CONTACT: **Flush with cool running water. If irritation develops get medical attention.**
INGESTION: **If conscious, give several glasses of water or milk. Get medical attention.**
INHALATION: **Go to fresh air. Give oxygen or apply artificial respiration if needed.**

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: **Recommended (rubber,PVC)**
EYE PROTECTION: **Recommended (goggles, safety glasses)**
LOCAL EXHAUST: **Recommended**
RESPIRATORY: **Not needed**

OTHER EQUIPMENT: **None required**

REACTIVITY DATA

INCOMPATIBLE MATERIALS: **Cationic material, strong acids and alkalis.**
STABILITY: **Product is stable**
POLYMERIZATION: **Will not occur**
DECOMPOSITION PRODUCTS: **None known.**

SPILL OR DISPOSAL

SPILL: **Contain all spills and leaks to prevent discharge into the environment. Soak up with an absorbent, shovel into waste containers, flush with water.**

DISPOSAL: **Remove material or dispose of (incineration is preferred) in accordance with all applicable federal, state and local regulations. Material collected with absorbent may be disposed of in a permitted landfill in accordance with federal, state and local regulations.**

Prepared by:_____

EMERGENCY TELEPHONE: **INFOTRAC 1-800-535-5053**

LUBE C
Multi-Purpose Chain Lubricant

BENEFITS

1. Safe on all container surfaces
2. Concentrated for economy
3. Contains a bacteriastat
4. Provides excellent lubricity

DESCRIPTION

LUBE C has been formulated to provide excellent lubricity with a bacteriastat to control microorganisms. The blend of extreme pressure lubricants and fatty acids provide an excellent balance of lubricants to perform under a variety of conditions. It is excellent on steel and Hy Fax conveyors running at either high or low speed.

LUBE C has also been formulated to be compatible with PET bottle, glass, aluminum, or steel containers.

PROPERTIES

ODOR……SOAP
APPEARANCE……LIGHT AMBER COLOR
TOTAL SOLIDS……36%
pH OF CONCENTRATION……8.5-9.5
SPECIFIC GRAVITY……1.08

GENERAL USE DIRECTIONS

In soft water, LUBE C will perform at a rate of 1 part to 300-350 parts of water.

In hard water with hardness up to 17 grains, LUBE C will perform at a rate of 1 part to 150-200 parts of water.

SAFETY

CAUTION: Product contains soaps that are surface-active agents. They will cause irritation to skin and painful irritation to eyes. If contact occurs flush skin or eyes with cool running water for 15 minutes. If redness develops seek medical attention.

If swallowed, induce vomiting. Drink large amounts of olive or mineral oil. Call a physician immediately.

Rev. 12/98

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY CO 80022

PHONE: 303-287-0186
MSDS DATE: 04-05-99
REPLACES: 04-10-92

IDENTIFICATION

PRODUCT NAME: LUBE-H
COMPOSITION: ANIONIC SOAP

This product requires submission of an annual report on release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENTS:	%	TLV LIMIT IN AIR
Isopropanol (CAS 67-63-0)	5	400 ppm (ASGIH) 400 PPM (OSHA)

PHYSICAL DATA

APPEARANCE: Clear Amber
ODOR: Soap/Alcohol
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.037
pH CONCENTRATE: 9.0
BOILING POINT: 190° F.
VISCOSITY: 18 cps

FIRE AND EXPLOSION DATA

FLAMMABILITY: Not flammable
EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS: None known

HEALTH HAZARD DATA

EYE EFFECT: Contact with eye is painful and irritating
SKIN EFFECT: Prolonged contact may cause irritation
INGESTION: If swallowed, consult a physician at once.
INHALATION: Alcohol portion, which can be inhaled or absorbed must be controlled below the TLV. Prolonged inhalation of vapors causes nausea, loss of motor skills and disorientation.

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. Get medical attention.
SKIN CONTACT: Flush with cool water. If irritation develops, get medical attention.
INHALATION: Go to fresh air. Give oxygen or apply artificial respiration if needed.
INGESTION: If conscious, give several glasses of water or milk. Get medical attention.

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES:	**Recommended (rubber, PVC)**
EYE PROTECTION:	**Recommended (goggles, safety glasses)**
RESPIRATORY:	**Recommended**
OTHER EQUIPMENT:	**Not needed**

REACTIVITY DATA

INCOMPATIBLE MATERIALS:	**Cationic, strong alkali or acids**
STABILITY:	**Product is stable**
POLYMERIZATION:	**Will not occur**
DECOMPOSITION PRODUCTS:	**None known**

SPILL OR LEAK PROCEDURES

SPILL: **Contain all spills and leaks to prevent discharge into the environment. Soak up with an absorbent, shovel into waste containers, flush with water.**

DISPOSAL: **Remove material and dispose of in accordance with all applicable federal, state and local regulations. Material collected with absorbent may be disposed of in a permitted landfill in accordance with federal, state and local regulations.**

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 1-800-535-5053

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: Recommended (rubber,PVC)
EYE PROTECTION: Recommended (goggles, safety glasses)
RESPIRATORY: Recommended
LOCAL EXHAUST: None required
OTHER EQUIPMENT:

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Strong Oxidizers, Anionic materials
STABILITY: Product is stable
POLYMERIZATION: Will not occur
DECOMPOSITION: May give off nitrous oxides and ammonical vapors.

SPILL AND DISPOSAL

SPILL: Contain all spills and leaks to prevent discharge into the environment. Soak up with an absorbent. Shovel into waste containers, flush with water.

DISPOSAL: Remove material or dispose of (incineration is preferred) in accordance with all applicable federal, state and local regulations. Material collected with absorbent may be disposed of in a permitted landfill in accordance with federal, state and local regulations.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 1-800-535-5053

ENVIRONMENTAL AND DISPOSAL INFORMATION

SPILL: Small spills: Cover with absorbent material, soak up and sweep into a drum.

Large spills: Dike around spill and pump into suitable containers.

DISPOSAL: Reprocess or burn in an approved incinerator in accordance with all Federal, state, and local requirements.

HANDLING PRECAUTIONS

EXPOSURE GUIDELINES: AIHA WEEL is a 50 ppm total; 10 mg/m3 aerosol only. There is no OSHA PEL or ACGIH TLV for propylene glycol.
VENTILATION: Good general ventilation should be sufficient.

RESPIRATION PROTECTION: When airborne exposure guidelines and/or comfort levels may be exceeded, use an approved air-purufying.

SKIN PROTECTION: Use impervious gloves when prolonged or frequently repeated contact could occur.

EYE PROTECTION: Use safety glasses. Where contact with liquids is likely, chemical goggles are recommended because eye contact with this material may cause pain, even though it is unlikely to cause injury.

ADDITIONAL INFORMATION

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Exercise reasonable care and caution.

MSDS STATUS: Revised section 6.

U.S. Regulations: SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Not to have met any hazard category.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

LUBE-H

BENEFITS

1. High performance chain lubricant
2. High foam generating characteristics
3. Inhibits rust formation on chains
4. Concentrated formula allows economical dilutions
5. Keeps coveyor chains clean

DESCRIPTION

LUBE-H is a quality uniform liquid that is suitable for all conveyor lubrication where foam is desired. It is effective in water supplies having hardness up to 17 grains per gallon (300 ppm) and will reduce the formation of deposits and scale found in lube systems. LUBE-H effectively cleans as it lubricates, and is biodegradable. LUBE-H can be effectively used in drip pots, roller pans, conductivity or proportional systems.

PROPERTIES

APPEARANCE...……...……..……..…CLEAR YELLOW TO AMBER LIQUID
ODOR…….……..…MILD
FOAM…...……..…….……... HIGH
WETTING…….…….EXCELLENT

Avoid freezing in shipment or storage in low temperature areas. Solutions of LUBE-H may be winterized but the concentrate should be stored at 50°F. or above. Keep containers covered and avoid contamination and dirt that can clog nozzles, screens, etc.

GENERAL USE DIRECTIONS

Central Systems: LUBE-H is recommended at 1 % to 1/2 % concentration based on the type of lubrication system (Intermittent or continuos), volume of feed rate, water hardness and the lubrication demands of the conveyor systems.

Drip Pot and Roller Pans: LUBE-H is recommended at 1 ounce per quart of water. Solution may be adjusted to suit requirements.

Water: Water softeners are recommended for water supplies with hardness over 17 grains per gallon.

COMPLIANCE

LUBE-H is acceptable to U.S. Department of Agriculture for use as an equipment lubricant provided there is no contact with edible products.

SAFETY

LUBE-H is an alkaline liquid. It contains surface active agents. It can cause eye irritation and can be harmful if swallowed. For eye contact, flush thoroughly with cool running water for 15 minutes. Get medical attention. If swallowed, drink large amounts of water or milk. Call a physician. Wash after use.

Rev. 12/98

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY CO 80022

PHONE: 303-287-0186
MSDS DATE: 04-05-99
REPLACES: 04-10-92

IDENTIFICATION

PRODUCT NAME: LUBE-P
COMPOSITION: ANIONIC

PHYSICAL DATA

APPEARANCE: Clear Amber **ODOR: Soap**
SOLUBILITY IN WATER: Complete **SPECIFIC GRAVITY: 1.040**
pH CONCENTRATE: 9.5 to 10.5
FLASH POINT: 120° F. (Closed Cup)
BOILING POINT: 202° F.

FIRE AND EXPLOSION DATA

FLAMMABILITY: **Not flammable**
EXTINGUISHING MEDIA: **Water, Carbon Dioxide, Foam**
UNUSUAL FIRE AND EXPLOSION HAZARDS: **None known**

HEALTH HAZARD DATA

EYE EFFECT: **Contact with eye is painful and irritating**
SKIN EFFECT: **Prolonged contact may cause irritation**
INGESTION: **If swallowed, consult a physician at once.**

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. Get medical attention.
SKIN CONTACT: Flush with cool water. If irritation develops, get medical attention.
INGESTION: If conscious, give several glasses of water or milk. Get medical attention.
INHALATION: Go tyo fresh air. Give oxygen or apply artificial respiration if needed.

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: Recommended (rubber,PVC)
EYE PROTECTION: Recommended (goggles, safety glasses)
RESPIRATORY: Recommended
VENTILATION: Recommended to keep alcohol below TLV
OTHER EQUIPMENT: Not needed

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Cationic, strong alkali or acids.
STABILITY: Product is stable
POLYMERIZATION: Will not occur
DECOMPOSITION: None known

SPILL OR LEAK PROCEDURES

SPILL: Contain all spills and leaks to prevent discharge into the environment. Soak up with an absorbent. Shovel into waste containers, flush with water.

DISPOSAL: Remove material or dispose of (incineration is preferred) in accordance with all applicable federal, state and local regulations. Material collected with absorbent may be disposed of in a permitted landfill in accordance with federal, state and local regulations.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 1-800-535-5053

ENVIRONMENTAL AND DISPOSAL INFORMATION

SPILL: Small spills: Cover with absorbent material, soak up and sweep into a drum.

Large spills: Dike around spill and pump into suitable containers.

DISPOSAL: Reprocess or burn in an approved incinerator in accordance with all Federal, state, and local requirements.

HANDLING PRECAUTIONS

EXPOSURE GUIDELINES: AIHA WEEL is a 50 ppm total; 10 mg/m3 aerosol only. There is no OSHA PEL or ACGIH TLV for propylene glycol.
VENTILATION: Good general ventilation should be sufficient.

RESPIRATION PROTECTION: When airborne exposure guidelines and/or comfort levels may be exceeded, use an approved air-purufying.

SKIN PROTECTION: Use impervious gloves when prolonged or frequently repeated contact could occur.

EYE PROTECTION: Use safety glasses. Where contact with liquids is likely, chemical goggles are recommended because eye contact with this material may cause pain, even though it is unlikely to cause injury.

ADDITIONAL INFORMATION

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Exercise reasonable care and caution.

MSDS STATUS: Revised section 6.

U.S. Regulations: SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Not to have met any hazard category.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

LUBE-P

BENEFITS

1. High performance chain lubricant
2. High foam generating characteristics
3. Inhibits rust formation on chains
4. Protects PET bottles
5. Keeps conveyor chains clean

DESCRIPTION

LUBE-P is a mixture of anionic soaps and nonionic lubricants. This type of blend allows LUBE-P to perform on all types of conveyor systems. This product has been formulated to protect PET bottles, however, unlike other PET lubes LUBE-P performs very well with glass and aluminum containers. This allows the bottler to use only one lubricant to do all the lubricating duties. This will cut down on products and expensive double accounting.

LUBE-P has been formulated to perform in soft water. In hard water areas, a water softening system is recommended.

PROPERTIES

APPEARANCE...……...……...……...…CLEAR AMBER LIQUID
ODOR…….……MILD
FOAM…...……...…….……... HIGH
SPECIFIC GRAVITY……...…….…….1.04
Ph of CONCENTRATE……..8.5 to 9.5

Avoid freezing in shipment or storage in low temperature areas.

GENERAL USE DIRECTIONS

Central Systems: LUBE-P is recommended at 1 % to 1/2 % concentration based on the type of lubrication system (Intermittent or continuos). Only use this product in soft water or in conjunction with a water softener.

SAFETY

LUBE-P is an alkaline liquid. See product label or MSDS for precautionary information.

Rev. 12/98

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY CO 80022

PHONE: 303-287-0186
MSDS DATE: 04-05-99
REPLACES: 04-10-92

IDENTIFICATION

PRODUCT NAME: LUBE-S
COMPOSITION: ANIONIC SOAP

This product requires submission of an annual report on release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENTS:	%	TLV LIMIT IN AIR
NONE		NONE

PHYSICAL DATA

APPEARANCE: Clear Amber
ODOR: Soap
SOLUBILITY IN WATER: Complete
pH CONCENTRATE: 9.0
BOILING POINT: 210° F.
FLASH POINT: None (closes cup)
SPECIFIC GRAVITY: 1.037
VISCOSITY: 18 cps

FIRE AND EXPLOSION DATA

FLAMMABILITY: Not flammable
EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS: None known

HEALTH HAZARD DATA

EYE EFFECT: Contact with eye is painful and irritating
SKIN EFFECT: Prolonged contact may cause irritation
INGESTION: If swallowed, consult a physician at once.
INHALATION: No hazard.

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. Get medical attention.
SKIN CONTACT: Flush with cool water. If irritation develops, get medical attention.
INHALATION: Go to fresh air. Give oxygen or apply artificial respiration if needed.
INGESTION: If conscious, give several glasses of water or milk. Get medical attention.

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: Recommended (rubber, PVC)
EYE PROTECTION: Recommended (goggles, safety glasses)
RESPIRATORY: Not needed
OTHER EQUIPMENT: Not needed
VENTILATION: Not needed

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Cationic, strong alkali or acids
STABILITY: Product is stable
POLYMERIZATION: Will not occur
DECOMPOSITION PRODUCTS: None known

SPILL OR LEAK PROCEDURES

SPILL: Contain all spills and leaks to prevent discharge into the environment. Soak up with an absorbent, shovel into waste containers, flush with water.

DISPOSAL: Remove material or dispose of (incineration is preferred) in accordance with all applicable federal, state and local regulations. Material collected with absorbent may be disposed of in a permitted landfill in accordance with federal, state and local regulations.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 1-800-535-5053

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: Recommended (rubber,PVC)
EYE PROTECTION: Recommended (goggles, safety glasses)
RESPIRATORY: Recommended
LOCAL EXHAUST: None required
OTHER EQUIPMENT:

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Strong Oxidizers, Anionic materials
STABILITY: Product is stable
POLYMERIZATION: Will not occur
DECOMPOSITION: May give off nitrous oxides and ammonical vapors.

SPILL AND DISPOSAL

SPILL: Contain all spills and leaks to prevent discharge into the environment. Soak up with an absorbent. Shovel into waste containers, flush with water.

DISPOSAL: Remove material or dispose of (incineration is preferred) in accordance with all applicable federal, state and local regulations. Material collected with absorbent may be disposed of in a permitted landfill in accordance with federal, state and local regulations.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 1-800-535-5053

ENVIRONMENTAL AND DISPOSAL INFORMATION

SPILL: Small spills: Cover with absorbent material, soak up and sweep into a drum.

Large spills: Dike around spill and pump into suitable containers.

DISPOSAL: Reprocess or burn in an approved incinerator in accordance with all Federal, state, and local requirements.

HANDLING PRECAUTIONS

EXPOSURE GUIDELINES: AIHA WEEL is a 50 ppm total; 10 mg/m3 aerosol only. There is no OSHA PEL or ACGIH TLV for propylene glycol.
VENTILATION: Good general ventilation should be sufficient.

RESPIRATION PROTECTION: When airborne exposure guidelines and/or comfort levels may be exceeded, use an approved air-purufying.

SKIN PROTECTION: Use impervious gloves when prolonged or frequently repeated contact could occur.

EYE PROTECTION: Use safety glasses. Where contact with liquids is likely, chemical goggles are recommended because eye contact with this material may cause pain, even though it is unlikely to cause injury.

ADDITIONAL INFORMATION

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Exercise reasonable care and caution.

MSDS STATUS: Revised section 6.

U.S. Regulations: SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Not to have met any hazard category.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

LUBE-S

BENEFITS

1. High performance chain lubricant
2. Contains no V.O.C.
3. Inhibits rust formation on chains
4. Contains EP Lubricants
5. Keeps conveyor chains clean

DESCRIPTION

LUBE-S is a quality chain lubricant that is suitable for all conveyor systems. It is based on a mixture of Oleic and Stearic Acid soaps that do not contain any V.O.C.'s With its extreme pressure lubricant ingredients LUBE-S will allow chains to dry of lubricant and still perform without causing lines to snap or drive motors to burn out.

LUBE-S along with Oxine injected through the ALISS unit will produce an effective lubricant with bactericidal activity.

PROPERTIES

APPEARANCE...……...……..……..…CLEAR YELLOW TO AMBER LIQUID
ODOR…….……..…MILD
FOAM…...……..…….……... HIGH
SPECIFIC GRAVITY……..…….…….1.03
pH of CONCENTRATE……..……..8.5 to 9.5

Avoid freezing in shipment or storage in low temperature areas. Solutions of LUBE-S may be winterized, but the concentrate should be stored at 50 degrees F. or more. Keep containers covered, and avoid contamination and dirt that can clog nozzle and screens, etc.

GENERAL USE DIRECTIONS

Proportional or Conductivity Systems: LUBE-S is recommended at 1/2% to 1% concentrations, based on the type of lubrication demands of the lubrication system (intermittent or continuos), volume of feed rate, water hardness and lubrication demands of the conveyor system.

Water: Water Softeners are recommended for water supplies with hardness over 7 grains per gallon.

COMPLIANCE

LUBE-S is acceptable to the U.S. Department of Agriculture for use as an equipment lubricant provided there is no contact with edible products.

SAFETY

Caution: Can be harmful if swallowed. Can cause eye irritation. This product contains surfactants.

FIRST AID

For eye contact, flush thoroughly with cool running water for 15 minutes. Get medical attention. If swallowed, drink large amounts of water or milk. Call a physician. Wash after use.

Rev. 1/99

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC. **PHONE: 303-287-0186**
6731 E. 50 TH. AVENUE
COMMERCE CITY, CO 80022

MSDS DATE: 4-27-98
REPLACES: New

IDENTIFICATION

PRODUCT NAME: MAGNESIUM SULFATE SOLUTION
COMPOSITION: Magnesium Sulfate and Deionized Water

HAZARDOUS INGREDIENTS: **%** **TLV LIMIT IN AIR**
None

PHYSICAL DATA

APPEARANCE: Clear Liquid
ODOR: None
SPECIFIC GRAVITY: 1.020 to 1.026
BOILING POINT: 212° F.
EVAPORATION RATE: 1 (water = 1)
FLASH POINT: N/A

FIRE AND EXPLOSION DATA

FLAMMABILITY: Not flammable.
EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam.
UNUSUAL FIRE AND EXPLOSION HAZARDS: At extreme temperatures small amounts of Magneium Oxide may be generated.

HEALTH HAZARD DATA

EYE: May cause irritation.
SKIN: No adverse effects known or suspected.
INGESTION: Causes nausea, vomiting, abdominal cramps and diarrhea.
INHALATION: N/A

EMERGENCY & FIRST AID PROCEDURES

EYE: Flush with cool running water for 15 minutes. If redness or irritation develops seek medical attention.

SKIN: Flush with cool running water for 15 minutes. If redness or irritation develops seek medical attention.

INGESTION: Induce vomiting by drinking large amount of water or sticking fingers down throat. Call a physician at once.

SPECIAL PROTECTION INFORMATION

EYES: Wear safety glasses.
HANDS: Wear gloves.
FEET: Boots are recommended.
LOCAL EXHAUST: Always work in a well ventilated area.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: None known.
STABILITY: Product is stable.
DECOMPOSITION PRODUCTS: None known.

SPILL OR LEAK PROCEDURES

ENVIRONMENTAL HAZARD: No adverse effects known or suspected. Not a listed toxic chemical under SARA Title III, 302, 304, or 313.

SPILLAGE: Not a RCRA hazardous waste. Dispose of in sewer or landfill accordinng to all Federal, state and local regulations.

PREPARED BY:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 01-11-99
REPLACES: 04-01-96

IDENTIFICATION

PRODUCT NAME: PBW
COMPOSITION: SILICATES, PHOSPHATES, AND SURFACTANTS

This product may require submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which reporting under the statue are:

HAZARDOUS INGREDIENTS:	**%**	**TLV LIMIT IN AIR**
Sodium Metasilicate (CAS# 006834-92-0)	30%	2 mg/m³ (PEL) 2 mg/m³ (OSHA)

PHYSICAL DATA

APPEARANCE: White Powder
ODOR: Odorless
MELTING POINT: N/A

SOLUBILITY IN WATER: < 10%
pH of 1% SOLUTION: 11-12
BULK DENSITY: 64 lbs/cu ft

FIRE AND EXPLOSION DATA

FLAMMABILITY: Not flammable
EXTINGUISHING MEDIA: Water, carbon dioxide, foam
UNUSUAL FIRE & EXPLOSION HAZARDS: None known

HEALTH HAZARD DATA

EYE CONTACT: Irritant, prolonged contact may damage eye.
SKIN CONTACT: Irritant, prolonged contact will cause redness and blistering.
INGESTION: May cause nausea, vomiting, abdominal pain.
INHALATION: May irritate the nose and throat and cause coughing and chest discomfort.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with cool running water for at least 15 minutes Get medical attention.

SKIN CONTACT: Immediately flush with large amounts of cool water. If irritation develops see a physician.

INHALATION: Get person to fresh air. If burning and irritation persist get medical attention.

INGESTION: If conscious, give several glasses of milk or water. Do not induce vomiting. Call a physician immediately.

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: Recommended (rubber, PVC)
EYE PROTECTION: Recommended (goggles, safety glasses)
VENTILATION: Adequate to remove any dust produced
RESPIRATORY: Recommended (dust mask)
OTHER EQUIPMENT: None needed

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Acids
STABILITY: Stable under dry conditions, will pick up water.
POLYMERIZATION: Keep container closed.
DECOMPOSITION PRODUCT: None known

SPILL OR LEAK PROCEDURES

SPILL: Wear dust mask and safety equipment. Sweep up material and put into drums. Flush residue to sewer with large amount of water.

DISPOSAL: Dispose of waste materials used in cleaning up spills in a manner approved for this material. Consult appropriate federal, state, and local regulatory agencies to ascertain proper disposal procedures.

Prepared by:_____
Charles B. Talley

P.B.W.

Patent Nos. 5,663,132 & 5,789,361

BENEFITS

- **Safe to use**
- **Effective in wide temperature range**
- **Free Rinsing**
- **Replaces Caustic Cleaners**
- **Removes Stains from Lauter Screens**
- **Non-Hazardous and Non-Corrosive**

DESCRIPTION

P.B.W. is a buffered alkaline detergent that has been proven to be more than an effective substitute for caustic soda cleaners. Because of its unique Patented formulation P.B.W. can out perform caustic cleaners and still not corrode soft metals. This product does not depend on caustic soda to remove soils but on active oxygen and mild alkali to do the same job. The activated oxygen in this product helps in reducing B.O.D. in the brew house effluent. This can help reduce the impact that cleaning solutions can have on municipal waste water systems.

P.B.W. has been formulated as a C.I.P. cleaner and is very effective in removing protein soils found in brew kettles, mash/lauter tuns, fermenters and conditioning tanks. The surfactant package in this product has been designed to actively defoam at 100ºF. P.B.W. can be used up to temperatures of 180ºF. At colder temperatures the surfactant will not defoam and a slight foaming action is observed. A number of brewers use P.B.W. in cold water as a manual cleaner. The concentration to remove these soils is typically in the 3/4% to 1-1/2% range, however, due to soil and water conditions this concentration will vary. To help in hard water areas P.B.W. has been formulated with enough chelators to tolerate hard water over 17 grains which allows for free rinsing.

P.B.W. is an excellent choice as a soak cleaner because it does not require heat. In soaking conditions the only requirement is time and proper concentration. This allows items that previously have been considered impossible to clean, i.e., kegs, heat exchangers, and brass filters to be cleaned easily.

PROPERTIES

APPEARANCE. . . . . .WHITE POWDER
RINSING ABILITY . . . . . EXCELLENT
FOAM . . . . . .NONE ABOVE 100 ° F
pH OF 1% SOLUTION 12.0%

GENERAL USE DIRECTIONS

In CIP use, the concentration of P.B.W. will vary depending on the soil load of the vessel. The following concentrations are recommended.

Brew Kettles and Mas/Lauter Tuns:
SINGLE BREW CLEANING - Use 1 ounce per gallon of water (.75% solution by weight). Rinse with potable water.

FOR MULTIPLE BREW CLEANING - It is recommended to pre-rinse kettle with Acid Cleaner #5 at the rate of 1 ounce per gallon at 120ºF for 20 minutes. Rinse, then use P.B.W. at the rate of 1 ounce per gallon at temperatures between 140ºF and 180ºF. Rinse with potable water.

Fermenters, Bright Tanks and Serving Tanks: Use 3/4 to 1 ounce per gallon of water (.50% to .75% solution by weight) for 25 to 35 minutes, at temperatures between 120ºF and 180ºF. Rinse with potable water.

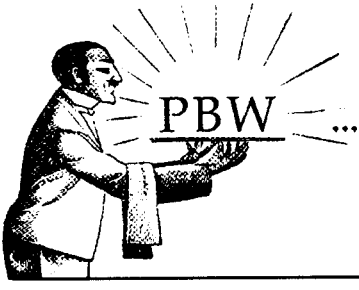
It is recommended but not required to acid rinse after using P.B.W.

NOTE: When using any cleaning compound all surfaces that the product has been on must be rinsed with potable water. Just prior to start up sanitize the equipment in accordance with public health standards.

SAFETY

CAUTION: This product contains sodium metasilicate. It may cause burns to skin and eyes. Can be harmful or fatal if swallowed.

If contact with eyes occurs, flush with water for 15 minutes and get prompt medical attention. If swallowed, do not induce vomiting. Drink large amounts of milk or water. Call a physician immediately.



Try These Great Money Saving Tips with PBW!

In The Automatic Dishwasher

Place 1 Tablespoon of PBW in each detergent cup. Removes difficult soils from metal, ceramic and glass without spotting. Especially useful for removing tea and tomato stains from plastic containers. Not recomended for use on 'no-stick' or teflon surfaces.

On The Grill

Fill a pan or basin with hot tap water. Add 3 Tablespoons of PBW for each gallon of water. Soak BBQ grills, toaster oven trays, soup pots or other items from 20 minutes to 1 1/2 hours. After rinsing they will be cleaner than when you bought them.

Use the same concentration in a spray bottle to clean vent hoods, ovens and stoves. Saturate surfaces with PBW solution, let stand for 5 minutes, rinse with clean water and dry. Not recomended for use on painted or fine wax finishes.

On The Floor

Fill mop bucket with hot tap water. Add 2 Tablespoons of PBW per gallon of water. Mop as usual. A clean water rinse after use is recomended.

Even in the Laundry

Use PBW instead of Bleach! Simply add 2 Tablespoons of PBW per wash. PBW also performs as an superb detergent and brightener for all colors and temperatures. Use 1/4 cup of PBW in place of your usual laundry detergent.

Keep you eyes open for more great uses for Five Star products!

Five Star Chemicals
www.starclean.com
1-800-782-7019

PEROXYACETIC ACID

BENEFITS

1. Excellent non-foaming action at low concentrations.
2. Effective at low temperatures.
3. Non-absorptive in materials of plant construction.
4. Upon use, active ingredients breakdown into water, oxygen and acetic acid.

DESCRIPTION

PEROXYACETIC ACID is an equilibrium solution of two active ingredients-peroxyacetic acid and hydrogen peroxide. PEROXYACETIC ACID has been formulated for use in the circulation cleaning and final acid rinse of equipment such as tanks, pipelines, evaporators, fillers, pasteurizes, and aseptic equipment in dairies, wineries, breweries and beverage plants. When properly diluted, meets the specifications for an indirect food additive in accordance with 21 CFR 178.1010 (b) (30) and (c) (25).

PROPERTIES

CHEMICAL	% BY WEIGHT	PHYSICAL	
Peroxyacetic Acid	5.1%	Melting/Freezing Point	-25.9º C
Hydrogen Peroxide	21.7%	Vapor Pressure	22 mm Hg
Inert Ingredients	73.2%	Odor	strong pungent
Active oxygen content	11.3%	Appearance	colorless liquid
		pH (1% solution)	2.5
		Solubility in water (20ºC)	100%
		Density (lbs./gal)	9.17

GENERAL USE DIRECTIONS

For use as a final rinse on equipment such as tanks, pipelines, evaporators, fillers, pasteurizes, and aseptic equipment in dairies, wineries, breweries, and beverage plants.

Add 1.6-1.9 ounces PEROXYACETIC ACID to 5 gallons of potable water . This will provide 128 to 152 ppm PEROXYACETIC ACID and 550 to 644 ppm hydrogen peroxide. Run at 60º to 110ºF for a minimum of 5 minutes. Allow surfaces to drain thoroughly before resuming operation.

SAFETY

DANGER: Contains Hydrogen Peroxide, a strong oxidizer. Skin that comes in contact with PEROXYACETIC ACID must be rinsed immediately with water for prolonged periods of time. If eye contact occurs, rinse eyes with a washing solution containing 2% sodium bicarbonate. If solution is not available, wash the eyes immediately and very thoroughly with water for at least 15 minutes. Always consult an eye doctor.

Soiled wet clothing must be removed immediately and rinsed with water.

If symptoms of poisoning appear as a result of vapors being inhaled, place the victim in a horizontal position, keep warm, ensure fresh air inhaled, consult a doctor immediately and get to a hospital immediately.

Rev. 12/98

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 6-10-98
REPLACES: 9-9-93

IDENTIFICATION

PRODUCT NAME: PEROXYACETIC ACID
COMPOSITION: Peracetic acid, acetic acid, hydrogen peroxide and water.

HAZARDOUS INGREDIENTS:	**%**	**TLV LIMIT IN AIR**
Peracetic Acid	79-21-0	None
Acetic Acid	64-19-7	10 ppm
Hydrogen Peroxide	7722-84-1	1 ppm

PHYSICAL DATA

APPEARANCE: Colorless liquid
ODOR: Pungent
SOLUBILITY: Soluble
BOILING POINT: 200° F
MELTING POINT: Not Applicable
VAPOR DENSITY: Not Available
VAPOR PRESSURE: 25 to 27 mbar @ 20 C
SPECIFIC GRAVITY: 1.1 g/cm3 (H20=1)
EVAPORATION RATE: Not Available

FIRE AND EXPLOSION DATA

FLASH POINT: 96° C
EXPLOSION: Not considered an explosion hazard.
FIRE EXTINGUISHING MEDIA: Water. Evacuate enclosed and surrounding areas. If smoke and fumes. Cannot be avoided, use proximity suit and self-contained breathing apparatus. Use water spray to cool containers and disperse vapors. Keep spills away from sources of ignition.
SPECIAL INFORMATION: Heating may cause explosion.

HEALTH HAZARD DATA

- Causes severe eyes and skin burns. Harmful if swallowed.
- Vapor irritating to the eyes and respiratory tract.
- Do not get in eyes, on skin, or on clothing.
- Avoid breathing mist.
- Wash thoroughly after handling.
- Store in tightly closed container.
- Combustible Liquid and Vapor

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Expected to cause burns to the respiratory tract. If inhaled remove to fresh air. Give oxygen if breathing is difficult. If breathing has stopped, give artificial respiration. Call a physician immediately.

INGESTION: Expected to cause burns to the gastrointestinal tract. If swallowed, do not induce vomiting. Give victim a glass of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

SKIN CONTACT: Causes severe skin burns. In case of contact, flush skin with plenty of water for at least 15 minutes while removing contaminating clothing. Call a physician immediately.

EYE CONTACT: Causes severe eye burns. In case of contact, immediately flush under upper and lower eye lids with plenty of water for at least 15 minutes. Call a physician immediately.

CHRONIC EXPOSURE: No chronic effects are known for humans.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Atmospheric levels should be maintained below the exposure limits Listed in Section III by using engineering controls. If not feasible, Use approved full facepiece air-purifying respirator.
VENTILATION SYSTEM:	Provide general and/or local exhaust ventilation to maintain airborne levels below the exposure limits in Section III. Refer To "Industrial Ventilation" by ACGIH for a manual of recommended practices.
SKIN PROTECTION:	If skin or contamination of clothing is likely, protective clothing Should be worn.
EYE PROTECTION:	Chemical goggles are required.
PROTECTIVE GLOVES:	Wear chemical resistant gloves.

REACTIVE DATA

STABILITY:	Stable at normal tempetures and condition of storage.
HAZARDOUS DECOMPOSITION PRODUCTS:	Acetic acid.
HAZARDOUS POLYMERIZATION:	Will not undergo hazardous polymerization.
INCOMPATIBILITIES:	Heavy metal ions, alkalis, and combustible materials.

SPILL OR LEAK PROCEDURES

SPILL:	See Section V and VI for hazards and exposure controls. Dike with sand or earth to contain spill. Avoid ignition sources. Absorb with sand to other non-flammable material and transfer to approve DOT drum for recovery or disposal.
DISPOSE	Dispose of in accordance with all local, state and federal regulations.
GENERAL:	CERCLA/SARA requires notification to the appropriate Federal state and local authorities of releases of hazardous or extremely hazardous quantities equal to or greater than the Reportable Quantities (RQs) in 50 CFR 302.4 and 40 CFR 355. SARA Title 313 requires submissions of annual reports of releases of toxic chemicals that appear in 40 CFR 372. Components present in this product at a level which could require reporting under statute are listed in Section XII.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 6-09-98
REPLACES: 10-08-91

IDENTIFICATION

PRODUCT NAME: PHOSPHORIC ACID 75%
COMPOSITION: PHOSPHATE AND MINERAL ACID

This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENTS	%	TLV LIMITS IN AIR
Phosphoric Acid (CAS 7664-38-2)	75	TWA 1 mg/m (3) STEL 3 mg/m (3) OSHA/ACGIH
Water (CAS 7732-18-5)	25	N/A

* Included on FDA GRAS list- permitted as an additive in food.

PHYSICAL DATA

APPEARANCE: Colorless syrupy liquid
ODOR: No foreign odor
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.64
EVAPORATION RATE: 1 (water = 1)
BOILING POINT: 275° F
VAPOR PRESSURE: .03 @ 68° F (100% ACID)
pH OF CONCENTRATE: < 1

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non-combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic fumes.

EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated.

NFPA HAZARD RATING: Health 3; Flammability 0; Reactivity 0

HEALTH HAZARD DATA

- CAUSES SEVERE BURNS TO SKIN AND EYES. HARMFUL OR FATAL IF SWALLOWED.
- Liquid contact with the eyes may produce serious chemical burns.
- Vapor or mist is irritating, liquid may cause severe acid burns. No absorption if skin is not broken.
- Phosphoric acid may not produce an immediate burning sensation upon contact, delaying awareness of the worker that contact has occurred.
- By absorption, slightly hazardous, acute dermal LD(50) (rabbit): > 3160 mg/kg, industry studies slightly toxic.
- Vapor or mist can cause damage to nasal and respiratory passages.
- Do not mix with chlorine containing products as it will cause the release of chlorine gas.
- Severe irritant, TC (Lo) (Human): 100 mg/cu, meter (RTECS 1980).
- Irritation and damage to mucous membranes of the gastrointestinal tract, causing gastric pain, nausea & vomiting.
- Acute oral toxicity LD (50) (rat): 1530 mg/kg 1980.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure irrigate with saline solution. Get medical attention as soon as possible, especially if redness or irritation occurs.

SKIN CONTACT: Flush with cool running water. If irritation develops get medical attention.

INGESTION: If conscious, give several glasses of milk, water, egg whites or gelatin solution. Get medical attention immediately. DO NOT induce vomiting.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Atmospheric levels should be maintained below the exposure limits Listed in Hazardous Ingredients by using engineering controls. If not feasible, Use approved full face-piece air-purifying respirator.
VENTILATION SYSTEM:	Provide general and/or local exhaust ventilation to maintain airborne levels below the exposure limits in Hazardous Ingredients. Refer to "Industrial Ventilation" by ACGIH for a manual of recommended practices.
SKIN PROTECTION:	If skin or contamination of clothing is likely, protective clothing should be worn.
EYE PROTECTION:	Chemical goggles are required.
PROTECTIVE GLOVES:	Wear chemical resistant gloves.

REACTIVITY DATA

INCOMPATIBLE MATERIALS:	Reacts with active metals (e.g. mild steel, zinc and aluminum), producing heat and flammable hydrogen gas, also will react vigorously with basic materials (e.g. lime, soda ash, caustic soda and alkali metals). Avoid contact with material such as sulfides and sulfites which could release toxic gas.
STABILITY:	Stable
POLYMERIZATION:	Will not occur.
DECOMPOSITION PRODUCTS:	At temperatures > 300° C. Will decompose and emit toxic phosphorus oxide fumes.

SPILL OR LEAK PROCEDURES

SPILL:	See Emergency/ First Aid Procedures and Special Protection Information for hazards and exposure controls. Dike with sand or earth to contain spill. Avoid ignition sources. Absorb with sand or other non-flammable material and transfer to approve DOT drum for recovery or disposal.
DISPOSAL:	Dispose of in accordance with local, state and federal regulations.
GENERAL:	CERCLA/SARA requires notification to the appropriate Federal state and local authorities of releases of hazardous or extremely hazardous quantities equal to or greater than the Reportable Quantities (RQs) in 50 CFR 302.4 and 40 CFR 355. SARA Title 313 requires submissions of annual reports of releases of toxic chemicals that appear in 40 CFR 372. Components present in this product at a level which could require reporting under statute are listed under identification.

TRANSPORTATION

DOT HAZARD CLASSIFICATION:	Phosphoric Acid 8, UN1805, PG III
US DOT LABEL:	Corrosive, UN1805, Class 8
LABEL REQUIRED:	Corrosive, Class 8, Label as required by OSHA Hazard Communications Standard, and any applicable state and local regulations.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC. PHONE: 303-287-0186

6731 E. 50TH AVENUE MSDS DATE: 12-19-97

COMMERCE CITY CO 80022 REPLACES: 04-10-92

IDENTIFICATION

PRODUCT NAME: PROPYLENE GLYCOL

COMPOSITION: NON-HAZARDOUS

PHYSICAL DATA

APPEARANCE: Colorless Liquid ODOR: Odorless

SOLUBILITY IN WATER: Complete SPECIFIC GRAVITY: 1.038 20/20C, 68F

VAPOR PRESSURE: 0.08 mm Hg @ 20C, 68F

VAPOR DENSITY: 2.62

BOILING POINT: 370°F., 188°C.

FIRE AND EXPLOSION DATA

FLASH POINT: 218°F, 103°C

METHOD USED: PMCC

FLAMMABLE LIMITS

LFL: 2.6%

UFL: 12.5%

EXTINGUISHING MEDIA: Water fog, alcohol foam, CO2, dry chemical

SPECIAL FIRE FIGHTING PROCEDURES: Wear a positive-pressure, self-contained

breathing apparatus.

HEALTH HAZARD DATA

EYE: May cause slight transient (temporary) eye irritation. Corneal injury is unlikely.

SKIN CONTACT: Prolonged contact is essentially nonirritating to skin. Repeated exposure

may cause slight flaking, tenderness, and softening of skin.

SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. The LD50 for skin absorption in rabbits is >10 g/kg.

INGESTION: Single dose oral toxicity is extremely low. The oral LD50 for rats is 21-33.7 g/kg. No hazards anticipated from ingestion incidental to industrial exposure.

Inhalation: A single prolonged (hours) inhalation exposure is not likely to cause adverse effects. Mists are not likely to be hazardous.

SYSTEMATIC (OTHER TARGET ORGAN) EFFECTS: Repeated excessive ingestion may cause central nervous system effects.

CANCER INFORMATION: Did not cause cancer in long-term animal studies.

TERATOLOGY (BIRTH DEFECTS): Birth defects are unlikely. Exposures having no adverse on the mother should have no effect on the fetus.

REPRODUCTIVE EFFECTS: In animal studies, has been shown to interfere with reproduction.

MUTAGENICITY (EFFECTS ON GENETIC MATERIAL): Results of in vitro ('test tube') mutagenicity tests in animals have been negative.

Propylene Glycol

FIRST AID

EYES: Irrigate immediately with water for at least 5 minutes.

SKIN: Wash off in flowing water or shower

INGESTION: No adverse effects anticipated by this route of exposure.

INHALATION: No adverse effects anticipated by this route of exposure incidental to proper industrial handling.

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgement of the physician to response to reactions of the patient.

REACTIVITY DATA

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Oxidizing material.

STABILITY: (CONDITIONS TO AVOID) Stable under normal storage conditions.

POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS: Propionaldehyde, carbon monoxide in the presence of limited oxygen in a fire situation.

HAZARDOUS POLYMERIZATION: Will not occur.

ENVIRONMENTAL AND DISPOSAL INFORMATION

SPILL: Small spills: Cover with absorbent material, soak up and sweep into a drum.

Large spills: Dike around spill and pump into suitable containers.

DISPOSAL: Reprocess or burn in an approved incinerator in accordance with all

Federal, state, and local requirements.

HANDLING PRECAUTIONS

EXPOSURE GUIDELINES: AIHA WEEL is a 50 ppm total; 10 mg/m3 aerosol only. There

is no OSHA PEL or ACGIH TLV for propylene glycol.

VENTILATION: Good general ventilation should be sufficient.

RESPIRATION PROTECTION: When airborne exposure guidelines and/or comfort levels may

be exceeded, use an approved air-purufying.

SKIN PROTECTION: Use impervious gloves when prolonged or frequently repeated contact could

occur.

EYE PROTECTION: Use safety glasses. Where contact with liquids is likely, chemical goggles are

recommended because eye contact with this material may cause pain, even

though it is unlikely to cause injury.

ADDITIONAL INFORMATION

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Exercise reasonable care and caution.

MSDS STATUS: Revised section 6.

U.S. Regulations: SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Not to have met any hazard category.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 6-25-98
REPLACES: 08-05-97

IDENTIFICATION

PRODUCT NAME: QUANTUM
COMPOSITION: Quaternary

HAZARDOUS INGREDIENTS: NONE

PHYSICAL DATA

APPEARANCE: clear liquid
ODOR: Sweet
EVAPORATION RATE: 1 (water=1
VAPOR PRESSURE :Unknown
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 0.989
pH of CONCENTRATE: 7.3
BOILING POINT: 212° F.

FIRE AND EXPLOSION DATA

FLAMMABILITY: **Not flammable**
EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS: **NONE KNOWN**

HEALTH HAZARD DATA

EYE EFFECT: Contact with eye is painful and irritating.
SKIN EFFECT: Prolonged contact may cause irritation.
INGESTION: If swallowed, consult a physician.
INHALATION: No effect known.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: **Flush eye with cool running water for at least 15 minutes. Get medical attention.**
SKIN CONTACT: **Flush with cool running water. If irritation develops get medical attention.**
INGESTION: **If conscious, give several glasses of water or milk. Get medical attention.**

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: **Recommended (rubber,PVC)**
EYE PROTECTION: **Recommended (goggles, safety glasses)**
LOCAL EXHAUST: **Recommended**
OTHER EQUIPMENT: **None required**

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Strong Oxidizers, Anionic materials
STABILITY: Product is stable
POLYMERIZATION: Will not occur
DECOMPOSITION PRODUCTS: May give off nitrous oxides and ammoniacal vapors.

SPILL OR LEAK PROCEDURES

SPILL: Contain all spills and leaks to prevent discharge into the environment. Soak up with an absorbent, shovel into waste containers, flush with water.

DISPOSAL: Remove material or dispose of (incineration is preferred) in accordance with all applicable federal, state and local regulations. Material collected with absorbent may be disposed of in a permitted landfill in accordance with federal, state and local regulations.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 1-800-535-5053

QUANTUM

BENEFITS

1. Broad Spectrum of Bacterial Control
2. Low in Odor
3. No Rinse Required When Used at 200 ppm
4. Accepted by USDA in all departments.

DESCRIPTION

QUANTUM is designed specifically for hospitals, food processing plants, dairies, restaurants, bars, animal quarters, kennels, and institutions where disinfection, sanitation and deodorization are of prime importance. QUANTUM will sanitize previously cleaned and rinsed non-porous food contact surfaces such as tanks, chopping blocks, counter tops, drinking glasses, and eating utensils. QUANTUM can also be used to sanitize previously cleaned food grade egg and egg product-processing plants.

PROPERTIES

APPEARANCE	CLEAR WATER WHITE
ODOR	MILD TO SWEET
pH of CONCENTRATE	7 to 8
SPECIFIC GRAVITY	0.994

GENERAL USE DIRECTIONS

For most sanitizing applications use QUANTUM at 1 ounce per 4 gallons of water to produce a 200 ppm solution. This solution does not require a potable water rinse. Follow label directions for variations in sanitizing procedures.

COMPLIANCE

QUANTUM is acceptable to the U.S. Department of Agriculture for use as a general cleaning agent in official meat, poultry, rabbit, and egg processing establishments. After use, surfaces must be rinsed with potable water. The only exception is the 200 ppm solution.

SAFETY

CAUTION: Can be harmful is swallowed. May cause eye irritation. This product contains surfactants.

FIRST AID

For eye contact, flush thoroughly with cool running water for 15 minutes. Get medical attention. If swallowed drink large amount of water or milk. Call a physician. Wash after use. DO NOT induce vomiting.

NON-WARRANTY

The text above is given for information only. Five Star Products and Services make no warranties, either expressed or implied, concerning the use of this product other than for the purpose indicated.

Rev. 1/99

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY CO 80022

PHONE: 303-287-0186
MSDS DATE: 04-05-99
REPLACES: 04-10-92

IDENTIFICATION

PRODUCT NAME: QUICK
COMPOSITION: Surfactants and Mild Alkali

HAZARDOUS INGREDIENTS: NONE

PHYSICAL DATA

APPEARANCE: Greenish liquid
ODOR: Sweet
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.01
VAPOR PRESSURE: Unknown
pH CONCENTRATE: 8.0
EVAPORATION RATE: 1 (water=1)
BOILING POINT: 212°F.

FIRE AND EXPLOSION DATA

FLAMMABILITY: **Not flammable**
EXTINGUISHING MEDIA: **Water, Carbon Dioxide, Foam**
UNUSUAL FIRE AND EXPLOSION HAZARDS: **None known**

HEALTH HAZARD DATA

EYE EFFECT: **Contact with eye is painful and irritating**
SKIN EFFECT: **Prolonged contact may cause irritation**
INGESTION: **If swallowed, consult a physician at once.**
INHALATION: **No effect known**

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. Get medical attention.
SKIN CONTACT: Flush with cool water. If irritation develops, get medical attention.
INGESTION: If conscious, give several glasses of water or milk. Get medical attention.

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: Recommended (rubber,PVC)
EYE PROTECTION: Recommended (goggles, safety glasses)
RESPIRATORY: Recommended
LOCAL EXHAUST: None required
OTHER EQUIPMENT:

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Strong Oxidizers, Anionic materials
STABILITY: Product is stable
POLYMERIZATION: Will not occur
DECOMPOSITION: May give off nitrous oxides and ammonical vapors.

SPILL AND DISPOSAL

SPILL: Contain all spills and leaks to prevent discharge into the environment. Soak up with an absorbent. Shovel into waste containers, flush with water.

DISPOSAL: Remove material or dispose of (incineration is preferred) in accordance with all applicable federal, state and local regulations. Material collected with absorbent may be disposed of in a permitted landfill in accordance with federal, state and local regulations. PROPY

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 1-800-535-5053

QUICK

Detergent/Sanitizer/Disinfectant

BENEFITS

- All in One - Cleaner and Sanitizer
- Eliminates Odors
- Kills HIV Virus
- Safe and Easy to Use

DESCRIPTION

QUICK is a phosphate-free formulation designed to provide effective cleaning, deodorizing, sanitizing and disinfection for hard surface areas. QUICK has been proven to be very effective for use in food servicing establishments, hospitals, nursing homes, dairies, schools, processing plants and other institutions where housekeeping is of prime importance in controlling the hazards of cross contamination.

QUICK, when used as directed, is formulated to disinfect inanimate hard surfaces such as walls, floors, sink and counter tops, toilet bowls, tables, chairs, telephones, and bed frames. For large areas such as operating rooms, patient care facilities, kitchens and restrooms, this product is designed to provide both general cleaning and disinfecting.

QUICK deodorizes those areas which generally are hard to keep fresh smelling, such as garbage storage areas, toilet bowls and any other zones that are prone to cause odors due to microorganisms. In addition, QUICK sanitizes previously cleaned and rinsed non-porous food contact surfaces such as tanks, chopping blocks, counter tops, drinking glasses and eating utensils.

QUICK, when used as directed, is an effective cleaner, detergent, deodorizer, mildewstat, disinfectant, fungicide (against pathogenic fungi), sanitizer and virucide. QUICK meets all requirements for hospital use.

PROPERTIES

APPEARANCE	AQUA
ODOR	MILD TO SWEET
PHOSPHATES	PHOSPHATE FREE
pH	11.5

GENERAL USE DIRECTIONS

To disinfect inanimate hard surface items such as floors, walls, toilets, garbage bins, etc., add 2 ounces of QUICK per gallon of water. Allow these surfaces to remain wet for 10 minutes, then remove excess liquid. Heavily soiled areas must be pre-cleaned. Prepare a fresh solution for each use.

To sanitize previously cleaned and rinsed non-porous food contact surfaces prepare a 200 ppm active quaternary solution by adding 2 ounces of QUICK to 3.5 gallons of water. To sanitize immobile items such as tanks, chopping blocks and counter tops, flood the area with 200 ppm of QUICK and keep it in contact for 60 seconds. Remove and let air dry. NO POTABLE WATER RINSE IS REQUIRED when using QUICK at the 200 ppm level.

COMPLIANCE

QUICK is a registered E.P.A. sanitizer under 65001-CO-001. It is a detergent/disinfectant with its use regulated by the E.P.A. QUICK meets all requirements for hospital use.

SAFETY

DANGER: Corrosive -keep out of the reach of children. Can cause severe eye and skin damage. Do not get in eyes, on skin or on clothing.

In case of contact immediately flush eyes or skin with water for 15 minutes. If redness develops contact a physician.

If swallowed, drink egg whites or gelatin solution. If these are not available drink large quantities of water. Avoid alcohol. Call a physician immediately.

Rev. 1/99

SANICLEAN

No Rinse Acid Anionic Final Rinse

BENEFITS

1. Leaves Tanks and Equipment Spotless.
2. Not Affected by Organic Materials
3. No Rinse Requirement When Used at 200ppm
4. Accepted by U.S.D.A.

DESCRIPTION

SANICLEAN is a blend of phosphoric acid and Sulfonate Oleic Acid. This synergistic blend provides a unique synergistic system that is unaffected by excessive organic soils. SANICLEAN is low foaming. Unlike other acid sanitizers, anionic SANICLEAN will not produce excessive foam when recirculating through CIP systems. SANICLEAN does not require a rinse when used at or below 200 ppm. Using SANICLEAN on a daily basis will leave equipment in an acid condition that will eliminate water spotting. SANICLEAN is also excellent for part soaking. If kept at a pH of 3 or below SANICLEAN will remain effective for a week at a time and not require sweetening to eliminate spotting and remove odors.. It is not recommended to use SANICLEAN on soft metals because of the acid nature of this product.

PROPERTIES

APPEARANCE . . . . . DARK BROWN
ODOR . . . . . SLIGHTLY ALCOHOLIC
PHOSPHATE CONTENT AS % Phosphorus 5.8%
SPECIFIC GRAVITY. 1.320

GENERAL USE DIRECTIONS

Fermenters and Serving Tanks – Once the equipment has been properly cleaned make up a final acid anionic rinse using SANICLEAN as follows: In every barrel of water add 11 fluid ounces, circulate for a minimum of 3 minutes at ambient temperatures. Allow the system to completely drain and if possible air dry before filling tanks with beer.

Bulk Milk Tanks and General CIP - Once the systems have been properly cleaned follow with a SANICLEAN final rinse. Using an automatic injector or CIP tank set at 1 ounce per 3 gallons of water, run at 100-130ºF for 2-3 minutes. Allow all tanks to drain. Just prior to start-up follow state and local Health Department regulations covering start up sanitation.

Part Soaking - In a 5 gallon bucket add 4 gallons of water and 2 ounces of SANICLEAN. Once all parts have been removed from equipment and hand washed allow them to soak in the SANICLEAN solution for a minimum of 5 minutes. Remove parts from solution. Do not attempt to dry them in any manner. Reassemble wet parts on equipment to reduce the possibility of water spotting or any other undesirable conditions to occur.

COMPLIANCE

SANICLEAN is authorized by the U.S. Department of Agriculture for use as a general cleaning agent in official, meat, poultry, rabbit, and egg processing establishments. If used at a rate of more than 200 ppm, a potable rinse is required.

SAFETY

DANGER - Corrosive to skin and eye, contains Phosphoric Acid. Harmful if swallowed. Do not get in eyes, on skin or on clothing. Wear protective goggles and clothing when using. Avoid contamination of food. DO NOT MIX SANICLEAN with chlorinated cleaners as chlorine gas will result. See Label for more precautionary information.

For contact with skin and eye, flush with cool water for 15 minutes. If redness develops, seek medical attention.

For ingestion dilute by drinking large amounts of milk, if milk is not available use water. Do not induce vomiting. Seek medical attention.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY CO 80022

PHONE: 303-287-0186
MSDS DATE: 6-10-98
REPLACES: 01-15-92

IDENTIFICATION

PRODUCT NAME: SANICLEAN
COMPOSITION: Solution of Phosphoric acid and Sulfonated Oleic Acid

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This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product are at a level which requires reporting under the statute are:

HAZARDOUS INGREDIENTS:	**%**	**ACGIH TLV**
Phosphoric acid	29	1 mg/m
Sulfonate Oleic Acid	10	N/A

(Other compositional information is considered a trade secret.)

PHYSICAL DATA

APPEARANCE: Brown Liquid
ODOR: Slight Alcohol
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.27
pH CONCENTRATE: 1

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non - combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic fumes.

EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. Contact with chlorine will evolve chlorine gas.

NFPA HAZARD RATING: Health 3; Flammability 0; Reactivity 1

HEALTH HAZARD DATA

- CAUSES EYE DAMAGE AND SKIN IRRITATION. HARMFUL IF SWALLOWED.
- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid any skin contact.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive.
- Do not mix with chlorine sanitizers or chlorinated cleaners, or a harmful gas will form.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure, irrigate with saline solution. Get medical attention as soon as possible.

SKIN CONTACT: Flush with cool running water. If irritation develops, get medical attention. If on clothes wash before reusing.

INGESTION: If conscious, give several glasses of milk, water, egg whites or gelatin solution. Get medical attention immediately. DO NOT induce vomiting.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure limits Listed in Hazardous Ingredients by using engineering controls. If not feasible, Use approved full facepiece air-purifying respirator.

VENTILATION SYSTEM: Provide general and/or local exhaust ventilation to maintain airborne levels below the exposure limits in Hazardous Ingredients. Refer to "Industrial Ventilation" by ACGIH for a manual of recommended practices.

SKIN PROTECTION: If skin or contamination of clothing is likely, protective clothing should be worn.

EYE PROTECTION: Chemical goggles are required.

PROTECTIVE GLOVES: Wear chemical resistant gloves.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Alkalis, chlorinated products, and soft metals

STABILITY: Product is stable.

POLYMERIZATION: Will not occur.

DECOMPOSITION PRODUCTS: May give off phosphorous and nitrous oxide at high heat (fire conditions).

SPILL OR LEAK PROCEDURES

SPILL: See Emergency/ First Aid Procedures and Special Protection Information for hazards and exposure controls. Dike with sand or earth to contain spill. Avoid ignition sources. Absorb with sand to other non-flammable material and transfer to approve DOT drum for recovery or disposal.

DISPOSAL: Dispose of in accordance with local, state and federal regulations.

GENERAL: CERCLA/SARA requires notification to the appropriate Federal state and local authorities of releases of hazardous or extremely hazardous quantities equal to or greater than the Reportable Quantities (RQs) in 50 CFR 302.4 and 40 CFR 355.
SARA Title 313 requires submissions of annual reports of releases of toxic chemicals that appear in 40 CFR 372. Components present in this product at a level which could require reporting under statute are listed under identification.

TRANSPORTATION

DOT HAZARD CLASSIFICATION: Corrosive Liquids, N.O.S.
8, UN1760, PG III

PLACARD REQUIRED: Corrosive, UN1760, Class 8

LABEL REQUIRED: Corrosive, Class 8, Label required by OSHA Hazard Communication Standard, and any applicable state and local regulations.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY CO 80022

PHONE: 303-287-0186
MSDS DATE: 6-10-98
REPLACES: 07-08-94

IDENTIFICATION

PRODUCT NAME: SPARKLE
COMPOSITION: Caustic Potash, Sodium Hypochlorite, Surfactant

This product requires submission of an annual report of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENT:	%	TLV LIMIT IN AIR
Sodium Hypochlorite (CAS No. 10022-70-5)	1.5	None
Potassium Hydroxide (CAS No. 1310-58-3)	10.0	2 mg/m3 (ACGIH)

(Other compositional information is considered a trade secret.)

PHYSICAL DATA

APPEARANCE: Yellow/hazy liquid
ODOR: Chlorine/typical
SOLUBILITY IN WATER: Complete
pH CONCENTRATE: 12.8
EVAPORATION RATE: 1 (water=1)
BOILING POINT: 215° F.
SPECIFIC GRAVITY: 1.16
FLASH POINT: None

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non - combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic chlorine fumes.

EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with soft metals may evolve flammable hydrogen gas. Containers may explode when heated.

NFPA HAZARD RATING: Health 3; Flammability 0; Reactivity 1

HEALTH HAZARD DATA

- CAUSES SEVERE BURNS TO SKIN AND EYES. HARMFUL OR FATAL IS SWALLOWED.
- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid contact with skin and eyes.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive.
- Do not mix with acids or a violent reaction may occur and chlorine gas may be formed.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure irrigate with saline solution. Get medical attention as soon as possible.

SKIN CONTACT: Flush with cool running water for at least 5-10 minutes. If irritation develops get medical attention.

INGESTION: If conscious, drink large amounts of milk or water, followed by citrus juice or diluted vinegar. Get medical attention immediately. DO NOT induce vomiting.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS: Special ventilation is not required under normal use. Use local exhaust ventilation where dust, mist or spray may be generated.
Note: Where carbon monoxide or other reaction products may be generated, special ventilation may be required.

RESPIRATORY: Respiratory protection is not required under normal use. Use NIOSH/MSHA approved respirator where dust, mist, or spray may be generated.

EYE: Wear chemical safety goggles plus full face shield to protect against splashing.

GLOVES: Chemical Resistant gloves should be worn and may be decontaminated by washing with mild soap and water. Natural and butyl rubber have been suggested.

OTHER CLOTHING AND EQUIPMENT: Impervious protective clothing and chemically resistant safety shoes should be worn to minimize contact. Wash contaminated clothing with soap and water and dry before reuse. Showers and eyewash facilities should be in close proximity.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Acids, soft metals, and organic compounds.
STABILITY: Product is stable.
POLYMERIZATION: Will not occur.
DECOMPOSITION PRODUCTS: May give off chlorine gas at high heat (fire conditions).

SPILL OR LEAK PROCEDURES

SPILL: Leaks should be stopped. Spills should be contained and cleaned up immediately. Liquid spills should be removed by using a vacuum truck. Solid spills should be scooped up and placed in approved containers for disposal. Neutralize remaining traces of material with any dilute inorganic acid such as hydrochloric, sulfuric, nitric, phosphoric, or acetic acid. The spill area should then be flushed with water followed by liberal covering of sodium bicarbonate. All clean-up material should be removed and placed in approved containers, labeled and stored in a safe place to await proper treatment and disposal. Spills on areas other than pavement, e.g. dirt or sand, may be handled by removing the affected soils and placing in approved containers. Persons performing clean-up work should wear adequate personal protective equipment and clothing. Spills or releases should be reported if required, to the appropriate local, state, and federal regulatory agencies.

CAUTION: Sparkle may react violently with acid water forming a chlorine gas. Clean area as best as possible.

DISPOSAL: The materials resulting from clean-up operations may be hazardous waste and, therefore, subject to specific regulations. Package, storage, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state, and local health environmental regulation. Shipments of waste materials are subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state and local agencies receive proper notification of spill and disposal methods.

TRANSPORTATION

DOT HAZARD CLASSIFICATION: Corrosive Liquid, Basic, Inorganic, N.O.S. 8, UN3266, PG II
PLACARD REQUIRED: Corrosive, UN3266, Class 8
LABEL REQUIRED: Corrosive, Class 8, Label required by OSHA Hazard Communication Standard, and any applicable state and local regulations.

Prepared by:_____

SPARKLE
Self-Foaming Chlorinated Cleaner

BENEFITS

1. Chlorinated Self-Foaming
2. High detergency
3. Free-Rinsing
4. Effective in hard water

DESCRIPTION

SPARKLE is a self-foaming stabilized chlorinated cleaner. It is designed to be used through foaming equipment or manually with a bucket or brush. Since there is free alkaline in this product, proper safety precautions should be taken when handling SPARKLE.

SPARKLE will penetrate fats, grease and protein soils and hold them in suspension without redepositing after rinsing. The chlorine and detergent system in the product make it very effective in removing stubborn food and mold stains. SPARKLE has also been proven to be an effective cleaner in controlling odors and restoring conveyor belts to their original color.

Using SPARKLE as a foam cleaner and as an external cleaner, one person can clean an entire brew house or tank farm within minutes instead of hours of manual scrubbing.

PROPERTIES

APPEARANCE	GREEN TO YELLOW LIQUID
ODOR	CHLORINE
FOAM	THICK AND STABLE FOAM
WETTING	EXCELLENT
pH OF 1% SOLUTION	13.8
BIODEGRADABLE	YES
AVAILABLE CHLORINE	117 ppm @1 oz./gal.

GENERAL USE DIRECTIONS

Through block foamers, apply SPARKLE straight from container onto surface to be cleaned. If a tank foamer is used, prepare a concentration of one part SPARKLE to 2 parts water and then change tank to required air pressure. Allow the foam to stand for 5 to 10 minutes. Pressure rinse off with potable water.

Do not foam SPARKLE above 130° F.; high temperatures activate the chlorine and it will attack the foam and not the food soils that are to be removed.

SPARKLE can also be used manually at concentration of 3 - 6 oz. per gallon of water. Since there is free alkaline in this product, be sure to use rubber gloves and safety glasses when handling this product. Rinse all equipment with potable water after cleaning with SPARKLE.

COMPLIANCE

SPARKLE is acceptable to U.S. Department of Agriculture as a general cleaning agent in official meat, poultry, rabbit, and egg processing establishments. After use, a potable water rinse is required.

SAFETY

SPARKLE contains potassium hydroxide and sodium hypochlorite. The product will cause severe burns to skin and eyes. Avoid contact. Do not mix with acids for a violent reaction will occur forming chlorine gas.

If contact with skin or eyes occur, flush for 15 minutes with cool running water and seek medical attention immediately.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY CO 80022

PHONE: 303-287-0186
MSDS DATE: 12-19-97
REPLACES: 02-22-92

IDENTIFICATION

PRODUCT NAME: STAR CHLOR
COMPOSITION: Sodium Hypochlorite- 10%

This product is not currently listed under Title III, Section 313.

HAZARDOUS INGREDIENTS:	**%**	**TLV LIMIT IN AIR**
Sodium Hypochlorite (CAS 10022-70-5)	10.0	None

PHYSICAL DATA

APPEARANCE: Green/Yellow liquid
ODOR: Chlorine
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.178
EVAPORATION RATE: 1 (WATER=1)
pH CONCENTRATE: 13.0
BOILING POINT: 212° F.

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non - combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic chlorine fumes.

EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. Mixtures with ammonia or urea are explosive.

NFPA HAZARD RATING: Health 3; Flammability 0; Reactivity 1

HEALTH HAZARD DATA

- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid any skin contact.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure, irrigate with saline solution. Get medical attention as soon as possible.

SKIN CONTACT: Flush with cool running water. If irritation develops, get medical attention.

INGESTION: If conscious, give several glasses of milk, water, egg whites or gelatin solution. Get medical attention immediately. DO NOT induce vomiting.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure limits Listed in Hazardous Ingredients by using engineering controls. If not feasible, Use approved full face-piece air-purifying respirator.

VENTILATION SYSTEM: Provide general and/or local exhaust ventilation to maintain airborne

levels below the exposure limits in Hazardous Ingredients. Refer to "Industrial Ventilation" by ACGIH for a manual of recommended practices.

SKIN PROTECTION:	If skin or contamination of clothing is likely, protective clothing should be worn.
EYE PROTECTION:	Chemical goggles are required.
PROTECTIVE GLOVES:	Wear chemical resistant gloves.

REACTIVITY DATA

INCOMPATIBLE MATERIALS:	Ammonia, urea, acids, irons, soft metals, organic compounds and oxidizing compounds.
STABILITY:	Product is stable.
POLYMERIZATION:	Will not occur.
DECOMPOSITION PRODUCTS:	Will give off chlorine gas at high heat (fire conditions).

SPILL OR LEAK PROCEDURES

SPILL:	See Emergency/ First Aid Procedures and Special Protection Information for hazards and exposure controls. Dike with sand or earth to contain spill. Avoid ignition sources. Absorb with sand to other non-flammable material and transfer to approve DOT drum for recovery or disposal.
DISPOSAL:	Dispose of in accordance with local, state and federal regulations.
GENERAL:	CERCLA/SARA requires notification to the appropriate Federal state and local authorities of releases of hazardous or extremely hazardous quantities equal to or greater than the Reportable Quantities (RQs) in 50 CFR 302.4 and 40 CFR 355. SARA Title 313 requires submissions of annual reports of releases of toxic chemicals that appear in 40 CFR 372. Components present in this product at a level which could require reporting under statute are listed under identification.

TRANSPORTATION

DOT HAZARD CLASSIFICATION:	Hypochlorite Solution 8, UN1791, PG III
PLACARD REQUIRED:	Corrosive, UN1791, Class 8
LABEL REQUIRED:	Corrosive, Class 8, Label required by OSHA Hazard Communication Standard, and any applicable state and local regulations.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

STAR-CHLOR

BENEFITS

1. Sanitizes - Disinfects - Deodorizes
2. Convenient and Easy to Use
3. Saves Time
4. Concentrated
5. Produces Consistent and Quality Results

DESCRIPTION

STAR-CHLOR is a broad spectrum sanitizer - disinfectant effective against gram positive and gram negative organisms, molds, and yeasts. Odor causing organisms are quickly controlled on contact. Containing 10.3% available chlorine, STAR-CHLOR provides a practical and economical answer to sanitizing problems in all food processing areas. STAR-CHLOR is easy to use by just mixing with water. There is no dissolving or straining required. STAR-CHLOR is also recommended for use in chlorine dispensing equipment. The product is also very effective in the removal of many stains.

PROPERTIES

APPEARANCE	YELLOW LIQUID
ODOR	CHLORINE
pH @ 10ppm	8.5
pH @ 100ppm	10.5
pH @ 200ppm	10.5

GENERAL USE DIRECTIONS

STAR-CHLOR can be applied by rinse, dip, spray or fog applications in the following concentrations:
EQUIPMENT sanitation by spray or fog should be between 100 and 200 ppm.
VATS, KETTLES, & TANKS sanitation by rinse from 50-100 ppm.
WATER SUPPLY sanitation should maintain a 0.5 ppm residual.
A minimum of two minutes contact time is recommended to satisfy regulatory agencies and for best results.

DILUTION TABLE

STAR-CHLOR	WATER	AVAILABLE CHLORINE
2 3/4 ounces	40 gallons	50 ppm
2 3/4 ounces	20 gallons	100 ppm
2 3/4 ounces	10 gallons	200 ppm

COMPLIANCE

STAR-CHLOR is acceptable to the U.S. Department of Agriculture as a sanitizer in official meat, poultry, rabbit, and egg processing establishments. After sanitizing, a potable rinse is not required.

SAFETY

DANGER:
Contains free sodium hydroxide and sodium hypochlorite, it is corrosive to skin and eyes. Avoid breathing vapors, do not get on clothing, wash after use. Do not mix with acid products chlorine gas will be developed.

If swallowed: Do not induce vomiting, immediately drink plenty of water get victim to hospital.

In case of skin and eye contact: Flush with plenty of cool running water for 15 minutes. The eye should also be irrigated with saline solution for 1 hour.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 6-09-98
REPLACES: 07-07-92

IDENTIFICATION

PRODUCT NAME: STAR CON
COMPOSITION: CAUSTIC SODA AND SODIUM HYPOCHLORITE

This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENTS:	%	ACGIH TLV
Sodium Hypochlorite (CAS 10022-70-5)	1.5	None
Sodium Hydroxide (CAS 1310-73-2)	20.0	2 mg/m3

PHYSICAL DATA

APPEARANCE: Yellow-Green
ODOR: Chlorine/typical
EVAPORATION RATE: (water=1)
FLASH POINT: None
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.23
BOILING POINT: 220° F
pH CONCENTRATE: 13.2

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non - combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic fumes.

EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with soft metals may evolve flammable hydrogen gas. Containers may explode when heated.

NFPA HAZARD RATING: Health 3; Flammability 0; Reactivity 1

HEALTH HAZARD DATA

- CAUSES SEVERE BURNS TO SKIN AND EYES. HARMFUL OR FATAL IF SWALLOWED.
- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid any skin contact.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive.
- Do not mix with acids as a violent reaction may occur and chlorine gas may be formed.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure, irrigate with saline solution. Get medical attention as soon as possible.

SKIN CONTACT: Flush with cool running water for at least 5-10 minutes. If irritation develops, get medical attention.

INGESTION: If conscious, drink large amounts of milk or water, followed by citrus juice or diluted vinegar. Get medical attention immediately. DO NOT induce vomiting.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS: Special ventilation is not required under normal use. Use local exhaust ventilation where dust, mist or spray may be generated.
Note: Where carbon monoxide or other reaction products may be generated, special ventilation may be required.

RESPIRATORY: Respiratory protection is not required under normal use. Use NIOSH/MSHA approved respirator where dust, mist, or spray may be generated.

EYE: Wear chemical safety goggles plus full face shield to protect against splashing.

GLOVES: Chemical Resistant gloves should be worn and may be decontaminated by washing with mild soap and water. Natural and butyl rubber have been suggested.

OTHER CLOTHING AND EQUIPMENT: Impervious protective clothing and chemically resistant safety shoes should be worn to minimize contact. Wash contaminated clothing with soap and water and dry before reuse. Showers and eyewash facilities should be in close proximity.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Acid products and soft metals.
STABILITY: Product is stable.
POLYMERIZATION: Will not occur.
DECOMPOSITION PRODUCTS: May give off chlorine gas at high heat (fire conditions).

SPILL OR LEAK PROCEDURES

SPILL: Leaks should be stopped. Spills should be contained and cleaned up immediately. Liquid spills should be removed by using a vacuum truck. Solid spills should be scooped up and placed in approved containers for disposal. Neutralize remaining traces of material with any dilute inorganic acid such as hydrochloric, sulfuric, nitric, phosphoric, or acetic acid. The spill area should then be flushed with water followed by liberal covering of sodium bicarbonate. All clean-up material should be removed and placed in approved containers, labeled and stored in a safe place to await proper treatment and disposal. Spills on areas other than pavement, e.g. dirt or sand, may be handled by removing the affected soils and placing in approved containers. Persons performing clean-up work should wear adequate personal protective equipment and clothing. Spills or releases should be reported if required, to the appropriate local, state, and federal regulatory agencies.

CAUTION: Star Con may react violently with acid water. Chlorine gas may evolve.

DISPOSAL: The materials resulting from clean-up operations may be hazardous waste and, therefore, subject to specific regulations. Package, storage, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state, and local health environmental regulation. Shipments of waste materials are subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state and local agencies receive proper notification of spill and disposal methods.

TRANSPORTATION

DOT HAZARD CLASSIFICATION: Corrosive Liquid, Basic, Inorganic, N.O.S. 8, UN3266, PG II
PLACARD REQUIRED: Corrosive, UN3266, Class 8
LABEL REQUIRED: Corrosive, Class 8, Label required by OSHA Hazard Communication Standards, and any applicable state and local regulations.

STAR CON
Chlorinated Caustic

BENEFITS

1. Chelated to be more effective
2. Low foaming
3. Effectively removes proteinacious stains
4. Economical to use

DESCRIPTION

STAR CON is heavy-duty chlorinated liquid cleaner designed for CIP systems in the food industry. With the strength of caustic soda and the penetrating power of chlorine, STAR CON is an effective CIP cleaner for dairy and beer soils. It effectively removes protein stains leaving stainless steel surfaces free of blue haze. STAR CON was designed to be used in automatic CIP systems. It is highly chelated and can operate over a wide variety water hardness ranges and still rinse free, leaving surfaces shining and doesn't require an acid rinse.

PROPERTIES

APPEARANCE..……...……..……...……....CLEAR AMBER LIQUID
ODOR….……..ODORLESS
pH of CONCENTRATE……..……...……12.9
BIODEGRADABLE…….…….YES
SOLUBILITY IN WATER….…….……COMPLETE

GENERAL USE DIRECTIONS

Immediately after processing, rinse thoroughly with 110° F. water. Make a solution using 4 to 12 quarts of STAR CON per 50 gallons of water. Circulate the cleaning solution for 15 - 30 minutes at a temperature of 140° -160° F. Drain system. Rinse with 90º F. water.
ACID RINSE with one ounce of FIVE STAR ACID CLEANER #1 to 10 gallons of water and circulate as directed on the label. Rinse with potable water. (The use of all cleaning compounds must be followed by a potable water rinse). Drain the system. Just prior to reuse, sanitize with 200 ppm chlorine, or according to the local health standard.

COMPLIANCE

STAR CON is acceptable to the United States Department of Agriculture as a caustic CIP cleaner for use in official meat, poultry, rabbit, and egg processing establishments. After use, a potable rinse is required.

SAFETY

DANGER: Contains caustic soda and sodium hypochlorite. Avoid contact with skin and eyes. Do not get on clothing. Rinse thoroughly after use. Wear protective clothing when handling this product; gloves, goggles, and boots. DO NOT MIX WITH ACIDS, A VIOLENT REACTION OCCURS FORMING CHLORINE GAS.
For skin and eye contact, flush with plenty of cool water for at least 15 minutes. If eye contact occurs, irrigate with saline solution after water flushing. Seek medical attention.
For ingestion, dilute by drinking large amounts of milk, if milk is not available, use water. Do not induce vomiting. Seek medical attention immediately.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 6-25-98
REPLACES: 07-01-92

IDENTIFICATION

PRODUCT NAME: STAR LINE
COMPOSITION: CAUSTIC POTASH AND SODIUM HYPOCHLORITE

This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENTS:	**%**	**ACGIH TLV**
Sodium Hypochlorite (CAS 10022-70-5)	1.5	None
Potassium Hydroxide (CAS 1310-58-3)	20.0	2 mg/m3

(Other compositional information is considered a trade secret.)

PHYSICAL DATA

APPEARANCE: Green/Yellow
ODOR: Chlorine/typical
EVAPORATION RATE: (water=1)
FLASH POINT: None
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.23
BOILING POINT: 220° F
pH CONCENTRATE: 13.2

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non - combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic chlorine fumes.

EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with soft metals may evolve flammable hydrogen gas. ` Containers may explode when heated.

NFPA HAZARD RATING: Health 3, Flammability; Reactivity 1

HEALTH HAZARD DATA

- CAUSES SEVERE BURNS TO SKIN AND EYES. HARMFUL OR FATAL IF SWALLOWED.
- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid contact with skin, eyes, or clothing.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive.
- Do not breath dust.
- Do not mix with acids as a violent reaction may occur and chlorine gas may be formed.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure, irrigate with saline solution. Get medical attention as soon as possible.

SKIN CONTACT: Flush with cool running water for at least 5-10 minutes. If irritation develops, get medical attention.

INGESTION: If conscious, drink large amounts of milk or water, followed by citrus juice or

diluted vinegar. Get medical attention immediately. DO NOT induce vomiting.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS: Special ventilation is not required under normal use. Use local exhaust ventilation where dust, mist or spray may be generated.
Note: Where carbon monoxide or other reaction products may be generated, special ventilation may be required.

RESPIRATORY: Respiratory protection is not required under normal use. Use NIOSH/MSHA approved respirator where dust, mist, or spray may be generated.

EYE: Wear chemical safety goggles plus full face shield to protect against splashing.

GLOVES: Chemical Resistant gloves should be worn and may be decontaminated by washing with mild soap and water. Natural and butyl rubber have been suggested.

OTHER CLOTHING AND EQUIPMENT: Impervious protective clothing and chemically resistant safety shoes should be worn to minimize contact. Wash contaminated clothing with soap and water and dry before reuse. Showers and eyewash facilities should be in close proximity.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Acids, soft metals, and any chlorinated or fluorinated hydrocarbons.
STABILITY: Product is stable.
POLYMERIZATION: Will not occur.
DECOMPOSITION PRODUCTS: May give off chlorine gas at high heat (fire conditions).

SPILL OR LEAK PROCEDURES

SPILL: Leaks should be stopped. Spills should be contained and cleaned up immediately. Liquid spills should be removed by using a vacuum truck. Solid spills should be scooped up and placed in approved containers for disposal. Neutralize remaining traces of material with any dilute inorganic acid such as hydrochloric, sulfuric, nitric, phosphoric, or acetic acid. The spill area should then be flushed with water followed by liberal covering of sodium bicarbonate. All clean-up material should be removed and placed in approved containers, labeled and stored in a safe place to await proper treatment and disposal. Spills on areas other than pavement, e.g. dirt or sand, may be handled by removing the affected soils and placing in approved containers. Persons performing clean-up work should wear adequate personal protective equipment and clothing. Spills or releases should be reported if required, to the appropriate local, state, and federal regulatory agencies.

CAUTION: Starline may react violently with acid water. Remove as much material as possisle,

DISPOSAL: The materials resulting from clean-up operations may be hazardous waste and, therefore, subject to specific regulations. Package, storage, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state, and local health environmental regulation. Shipments of waste materials are subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state and local agencies receive proper notification of spill and disposal methods.

TRANSPORTATION

DOT HAZARD CLASSIFICATION: Corrosive Liquid, Basic, Inorganic, N.O.S. 8, UN3266, PG II
PLACARD REQUIRED: Corrosive, UN3266, Class 8
LABEL REQUIRED: Corrosive, Class 8, Label required by OSHA Hazard Communication Standard, and any applicable state and local regulations.

STARLINE

LIQUID CHLORINATED CLEANER

BENEFITS

1. Low Foaming
2. Chlorinated for Extra Cleaning Action
3. Effective in Hard Water
4. High Detergency
5. Free Rinsing

DESCRIPTION

STARLINE is a heavy duty liquid chlorinated low foam detergent designed for circulation cleaning throughout the Food and Dairy Industries. Processing lines, fillers, tanks, and vessels are effectively cleaned. Fats, grease, and proteinaceous soils are quickly penetrated and held in suspension without redepositing after rinsing. Being a liquid, it is ready to go right to work - no time is wasted in predissolving. When used as recommended, STARLINE is safe on all metals except aluminum, galvanized, and other soft metals. STARLINE concentrations can be electronically controlled and automatically fed directly from its shipping container into the cleaning solution supply tank. STARLINE is also highly effective in removing many stains during the cleaning process.

PROPERTIES

APPEARANCE. . . . . CLEAR, LIGHT YELLOW LIQUID
BIODEGRADABLE. . . . . YES
ODOR. . . . . .CHLORINE
AVAILABLE CHLORINE. . . . . .185 PPM @ 1 OZ. GAL.

GENERAL USE DIRECTIONS

STARLINE is most effective as a circulation and spray cleaner on a wide variety of food soils. A concentration of 1/3 ounce of STARLINE per gallon of water 140^{o} - 160^{o}F. is recommended. Cleaning times and concentrations will vary depending on soil load, type of soil, and cleaning frequency.

COMPLIANCE

STARLINE is acceptable to the U. S. Department of Agriculture as a general cleaning agent in official meat, poultry, rabbit, and egg processing establishments. After use, a potable water rinse is required.

SAFETY

STARLINE contains strong alkali. Store in a cool, dry area. Keep covered. See product label for precautionary information.

Rev. 1/99

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY CO 80022

PHONE: 303-287-0186
MSDS DATE: 01-11-98
REPLACES: 03-13-95

IDENTIFICATION

PRODUCT NAME: STAR POWDER
COMPOSITION: Chlorinated Trisodium Phosphate CAS #56802-99-4

HAZARDOUS INGREDIENTS: NONE

PHYSICAL DATA

APPEARANCE: Fine White Granular Powder
ODOR: Chlorine Like
SOLUBILITY: 21g/100g H20 @ 77°F
MELTING POINT: N/A
pH OF 1% SOLUTION: 11.8
BULK DENSITY:

FIRE AND EXPLOSION DATA

FLAMMABILITY: None
EXTINGUISHING MEDIA: Water, foam, carbon dioxide

UNUSUAL FIRE AND EXPLOSION HAZARDS: May give off toxic chlorine fumes

HEALTH HAZARD DATA

EYE EFFECT: Severe irritant, may cause extensive damage.
SKIN EFFECT: Severe irritant, may cause extensive damage.
INHALATION: Severe pain and burning of mouth, throat and gastrointestinal tract. Nausea, vomiting and cramps may also occur.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush eyes with cool running water for 15 minutes. Get medical attention at once.

SKIN CONTACT: Flush skin with cool running water for 15 minutes. Get medical attention at once.

INHALATION: Get person to fresh air. Call a physician at once.

INGESTION: DO NOT induce vomiting. Give large quantities of water. Call a physician at once.

SPECIAL PROTECTION INFORMATION

PROTECTIVE GLOVES: Recommended (rubber, PVC)
EYE PROTECTION: Recommended (goggles, safety glasses)
RESPIRATORY: Recommended (Dust Mask)
VENTILATION: As needed to remove any dust produced.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Acids, Iodine Compounds
STABILITY: Stable
POLYMERIZATION: None Known
DECOMPOSITION PRODUCTS: Chlorine gas or phosphorus oxides under fire conditions.

SPILL OR LEAK PROCEDURES

SPILL: Ventilate area and wear necessary safety equipment. Flush small spills to sewer with large amounts of water.

DISPOSAL: Place sweepings in appropriate chemical waste container. Seal container and dispose of in an approved landfill. Comply with all federal. state and local regulations.

Prepared by:_____

STAR POWDER
CHLORINATED TSP

BENEFITS

1. Mild Chlorinated Cleaner.
2. Protein Specific.
3. Easy to Use.
4. Versatile.

DESCRIPTION

STAR POWDER is a mild chlorinated cleaner based on chlorinated TSP. This product provides 3-1/2 % available chlorine in the powder form. It quickly dissolves in water. The use-working solution can be used as a manual cleaner for ice cream machines, brewing and dairy equipment, or as deodorizing wall and floor cleaner.

Strong concentrations can bleach and remove mold growth. It is not recognized as a sanitizer. However, STAR POWDER will reduce most microorganism growth rates.

When using STAR POWDER rinse equipment with potable water, and sanitize equipment in accordance with local health codes.

PROPERTIES

APPEARANCE……...…….WHITE FREE FLOWING POWDER
FOAM……...……..…NONE
pH @ 1% SOLUTION……11.8 - 12
SOLUBILITY...……....21 grams per 100 grams of water
% AVAILABLE CHLORINE @ 1oz./gallon……...…..……....270 ppm

GENERAL DIRECTIONS

Hand Cleaning of Ice and Milkshake Machines:

Use at a rate of 2 oz. per gallon after all parts and machinery have been thoroughly rinsed with water. After use, rinse with potable water.

Hand Cleaning of Brewing Equipment:

Rinse equipment with potable water. Wash with 1 oz. per gallon of solution. Rinse equipment with potable water after use.

Mold removal:

Make a solution of STAR POWDER at rate of 8 oz. per gallon of solution. Spray or soak area until mold begins to change color. Then rinse with high-pressure spray or with a high volume of water to dislodge mold from grout or concrete surface.

SAFETY

STAR POWDER is a chlorinated product and will react violently with acids or ammonia. Keep this product stored in a cool and dry place.

Wash thoroughly after use. If contact with skin or eyes occurs rinse with cool running water for 15 minutes. If redness persists, seek medical attention.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 6-25-98
REPLACES: 08-05-97

IDENTIFICATION

PRODUCT NAME: STAR SAN
COMPOSITION: Solution of Phosphoric Acid and Dodecylbenzene sulfonic acid.

This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENTS:	%	ACGIH TLV OSHA/PEL
Phosphoric Acid (75%) (CAS# 7664-38-2)	50.0	1 mg/ m 1 mg/M3(TWA)
Dodecylbenzene Sulfonic Acid (CAS# 27176-87-0)	15.3	N/A

(Other compositional information is considered a trade secret).

PHYSICAL DATA

APPEARANCE: Dark, amber liquid
ODOR: Slight
pH OF CONCENTRATE: 1
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.39 @ 60 °F
FLASH POINT: NONE

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non - combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic fumes.

EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. Contact with chlorine will evolve chlorine gas.

NFPA HAZARD RATING: Health 3; Flammability 0; Reactivity 1

HEALTH HAZARD DATA

- Causes eye damage and skin irritation, harmful if swallowed.
- Do not mix with chlorine sanitizers or chlorinated cleaners or a harmful gas will form.
- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid any skin contact.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure irrigate with saline solution Get medical attention as soon as possible.

SKIN CONTACT: Flush with cool running water. If irritation develops get medical attention.

INGESTION: If conscious, give several glasses of milk, water, egg whites or gelatin solution. Get medical attention immediately. DO NOT induce vomiting.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SUPPLEMENTAL HEALTH INFORMATION

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Atmospheric levels should be maintained below the exposure limits Listed in Hazardous Ingredients by using engineering controls. If not feasible, Use approved full facepiece air-purifying respirator.
VENTILATION SYSTEM:	Provide general and/or local exhaust ventilation to maintain airborne levels below the exposure limits in Hazardous Ingredients. Refer to "Industrial Ventilation" by ACGIH for a manual of recommended practices.
SKIN PROTECTION:	If skin or contamination of clothing is likely, protective clothing should be worn.
EYE PROTECTION:	Chemical goggles are required.
PROTECTIVE GLOVES:	Wear chemical resistant gloves.

REACTIVITY DATA

INCOMPATIBLE MATERIALS:	Alkalis, chlorinated products, and soft metals.
STABILITY:	Product is stable.
POLYMERIZATION:	Will not occur.
DECOMPOSITION PRODUCTS:	May give off phosphorous oxide at high heat (fire conditions).

SPILL OR LEAK PROCEDURES

SPILL:	See Emergency/ First Aid Procedures and Special Protection Information for hazards and exposure controls. Dike with sand or earth to contain spill. Avoid ignition sources. Absorb with sand to other non-flammable material and transfer to approve DOT drum for recovery or disposal.
DISPOSAL:	Dispose of in accordance with local, state and federal regulations.
GENERAL:	CERCLA/SARA requires notification to the appropriate Federal state and local authorities of releases of hazardous or extremely hazardous quantities equal to or greater than the Reportable Quantities (RQs) in 50 CFR 302.4 and 40 CFR 355. SARA Title 313 requires submissions of annual reports of releases of toxic chemicals that appear in 40 CFR 372. Components present in this product at a level which could require reporting under statute are listed under identification.

TRANSPORTATION

DOT HAZARD CLASSIFICATION:	Corrosive Liquid, N.O.S. 8, UN1760, PG III
US DOT LABEL:	Corrosive, UN1760, Class 8
LABEL REQUIRED:	Corrosive, Class 8, Label as required by OSHA Hazard Communication Standard, and any applicable state and local regulations.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

STAR SAN

Acid Sanitizer

BENEFITS

1. Broad Spectrum Bactericide and Fungicide
2. Not Affected by Organic Materials
3. No Rinse Requirement When Used at 200 ppm
4. Accepted by U.S.D.A. as a General Sanitizer in all Departments

DESCRIPTION

STAR SAN is a blend of phosphoric acid and dodecylbenzenesulfonic acid. This synergistic blend provides a unique killing system that is unaffected by excessive organic soils. STAR SAN is also a self-foaming sanitizer. It can be applied through a foamer to produce self-adhering sanitizing foam for external sanitation. STAR SAN is also an excellent sanitizer for hand application. Sanitizing with STAR SAN on a daily basis will leave equipment in a acid condition that will eliminate water spotting. It is not recommended to use STAR SAN on soft metals because of the acid nature of this product.

PROPERTIES

APPEARANCE . . . . . .DARK BROWN
ODOR . . . . . .SLIGHTLY ALCOHOLIC
PHOSPHATE CONTENT AS % Phosphorus. 5.8%
SPECIFIC GRAVITY. 1.320

GENERAL USE DIRECTIONS

All surfaces should be cleaned and rinsed before sanitizing with STAR SAN.

Directions: A dilution of 1 ounce to 5 gallons of water, STAR SAN will provide 200 ppm of dodecylbenzenesulfonic acid. After 1 to 2 minutes contact time, drain sanitizing solution equipment thoroughly. If using Star San in CIP, proper water balance must be maintained or your pump may cavitate. If used at a rate of more than 200 ppm, a potable rinse is required.

Part Soaking: Use 1 ounce of STAR SAN per 5 gallons of water. Parts must have contact with solution for 30 seconds and put on wet. When solution begins to cloud, sweeten with Star San or Phosphoric Acid. Solution must remain at a pH at 3 or below to maintain proper sanitizing level.

COMPLIANCE

STAR SAN is authorized by the U.S. Department of Agriculture for use as a general cleaning agent in official meat, poultry, rabbit, and egg processing establishments.

SAFETY

DANGER: Corrosive to skin and eye, contains Phosphoric Acid. Harmful if swallowed. Do not get in eyes, on skin or on clothing. Wear protective goggles and clothing when using. Avoid contamination of food. DO NOT MIX STAR SAN WITH CHLORINATED CLEANERS AS CHLORINE GAS WILL RESULT. See Label for more precautionary information.

For contact with skin and eye, flush with cool water for 15 minutes. If redness develops, seek medical attention.

For ingestion dilute by drinking large amounts of milk, if milk is not available use water. Do not induce vomiting. Seek medical attention.

Rev. 1/99

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 10-20-99
REPLACES: NEW

IDENTIFICATION

PRODUCT NAME: STAR SHINE
COMPOSITION: Solution of organic and inorganic acids with surfactants.

This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENTS:	**%**	**ACGIH TLV OSHA/PEL**
Phosphoric Acid (75%) (CAS# 7664-38-2)	4	1 mg/ m 1 mg/M3(TWA)
Dodecylbenzene Sulfonic Acid (CAS# 27176-87-0)	2	N/A

(Other compositional information is considered a trade secret).

PHYSICAL DATA

APPEARANCE: Amber liquid
ODOR: Slight
pH OF CONCENTRATE: 1
SOLUBILITY IN WATER: Complete
SPECIFIC GRAVITY: 1.05 @ 60° F
FLASH POINT: NONE

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non - combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic fumes.
EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS: Containers may explode when heated. Contact with chlorine will evolve chlorine gas.
NFPA HAZARD RATING: Health 1; Flammability 0; Reactivity 1

HEALTH HAZARD DATA

- Causes eye damage and skin irritation, harmful if swallowed.
- Do not mix with chlorine sanitizers or chlorinated cleaners or a harmful gas will form.
- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid any skin contact.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT:	Flush with cool running water for at least 15 minutes. For eye exposure irrigate with saline solution Get medical attention as soon as possible.
SKIN CONTACT:	Flush with cool running water. If irritation develops get medical attention.
INGESTION:	If conscious, give several glasses of milk, water, egg whites or gelatin solution. Get medical attention immediately. DO NOT induce vomiting.
INHALATION:	Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SUPPLEMENTAL HEALTH INFORMATION

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	Atmospheric levels should be maintained below the exposure limits Listed in Hazardous Ingredients by using engineering controls. If not feasible, Use approved full face piece air-purifying respirator.
VENTILATION SYSTEM:	Provide general and/or local exhaust ventilation to maintain airborne levels below the exposure limits in Hazardous Ingredients. Refer to "Industrial Ventilation" by ACGIH for a manual of recommended practices.
SKIN PROTECTION:	If skin or contamination of clothing is likely, protective clothing should be worn.
EYE PROTECTION:	Chemical goggles are required.
PROTECTIVE GLOVES:	Wear chemical resistant gloves.

REACTIVITY DATA

INCOMPATIBLE MATERIALS:	Alkalis and chlorinated products.
STABILITY:	Product is stable.
POLYMERIZATION:	Will not occur.
DECOMPOSITION PRODUCTS:	May give off phosphorous oxide at high heat (fire conditions).

SPILL OR LEAK PROCEDURES

SPILL:	See Emergency/ First Aid Procedures and Special Protection Information for hazards and exposure controls. Dike with sand or earth to contain spill. Avoid ignition sources. Absorb with sand to other non-flammable material and transfer to approve DOT drum for recovery or disposal.
DISPOSAL:	Dispose of in accordance with local, state and federal regulations.
GENERAL:	CERCLA/SARA requires notification to the appropriate Federal state and local authorities of releases of hazardous or extremely hazardous quantities equal to or greater than the Reportable Quantities (RQs) in 50 CFR 302.4 and 40 CFR 355. SARA Title 313 requires submissions of annual reports of releases of toxic chemicals that appear in 40 CFR 372. Components present in this product at a level which could require reporting under statute are listed under identification.

Prepared by:_____

EMERGENCY TELEPHONE: INFOTRAC 800-535-5053

Star Shine

A NO BUFF COPPER AND BRASS CLEANER

BENEFITS

1. Spray on and wipe off
2. Leaves no residue
3. Helps keep surfaces sanitary
4. Will not hurt varnished surfaces

DESCRIPTION

Star Shine is a blend of food type of acids with surfactants that have an incredible ability to remove oxides and dirt from soft metals such as copper and brass. The surfactants clean the metal and the acids remove the oxides. ***Star Shine*** is ideal to shine not only soft metals such as brass and copper, it is also excellent on stainless steel.

The minimal amount of rubbing required with this product makes it an ideal choice to use around bars, kitchens, and breweries.

PROPERTIES

APPEARANCE . . . . . DARK BROWN
ODOR . . . . . SLIGHTLY ALCOHOLIC
PHOSPHATE CONTENT AS % Phosphorus 5.8%
SPECIFIC GRAVITY. 1.320

GENERAL USE DIRECTIONS

For normal applications and soil loads, dissolve 1 ounce of ***Star Shine*** into a spray bottle with 32 ounces of water. Simply spray on and immediately wipe off. If the solution dries on before you are able to wipe it off, simply re-spray a small section at a time and wipe immediately.

For heavy soil loads, dissolve 1 ounce of ***Star Shine*** into a spray bottle with 5 ounces of water. Simply spray on and immediately wipe off. A second application or a little bit of rubbing may be necessary to remove built up tarnish.

SAFETY

CAUTION: This product contains mild Acids and surfactants. It will cause skin and eye irritation upon prolonged contact. Do not mix with any chlorinated product. Chlorine gas may be generated. Wash after use. Do not get on clothing.

FIRST AID:

For contact with skin and eye, flush with cool water for 15 minutes. If redness develops, seek medical attention.

For ingestion dilute by drinking large amounts of milk, if milk is not available use water. Do not induce vomiting. Seek medical attention.

Rev. 1/99

STAR SUPER CIP

BENEFITS

1. Highly Concentrated Chlorinated Caustic Cleaner
2. Effectively Removes Protein Staining
3. Low Foaming Surfactant for Quick Soil Penetration
4. USDA accepted in all areas.

DESCRIPTION

STAR SUPER CIP is a highly chlorinated caustic cleaner developed specifically for the brewery industry. It is designed to be a low foaming CIP cleaner that will effectively remove protein soils as well as stains from Lauter Tuns and Brew Kettles at low concentrations. The amount of chlorine in this product will control the bluing found on stainless steel after heat processing of protein based products.

PROPERTIES

APPEARANCE	WHITE TO YELLOW GRANULAR
ODOR	CHLORINE TYPICAL
FOAM	LOW
% AVAILABLE CHLORINE	1.75 MINIMUM
TOTAL ALKALINITY	30.0 MINIMUM

GENERAL USE DIRECTIONS

In CIP use, the concentration of Star Super CIP will vary depending on the soil load of the vessel. The following concentrations are recommended.

Brew Kettles and Lauter Tuns: Use 2 ounces per gallon of water for single brew cleaning. For multiple brew cleaning use 3 ounces per gallon of water. Circulate solution for 25 to 35 minutes at temperatures between 140°-160° F. Rinse with potable water.

Fermenters: Use 1 to 2 ounces per gallon of water. Circulate solution for 25 -35 minutes at temperatures between 140° -160° F. Rinse with potable water.

COMPLIANCE

The U. S. Department of Agriculture for use in official meat, poultry, rabbit, and egg processing establishments authorizes STAR SUPER CIP. After use, surfaces must be rinsed with potable water.

SAFETY

DANGER: Contains Sodium Hydroxide and Sodium Dichlor-S-Triazinetroine. Avoid contact with skin and eyes. Do not get on clothing. Rinse thoroughly after use. Avoid breathing dust. Wear protective clothing when handling this product; gloves, goggles and boots. DO NOT MIX WITH ACIDS, A VIOLENT REACTION OCCURS, FORMING CHLORINE GAS.

For skin and eye contact flush with plenty of cool water for at least 15 minutes. If eye contact occurs seek medical attention immediately. Eye should be irrigated with saline solution for one hour.

For ingestion dilute by drinking large amounts of milk, if milk is not available use water. Do not induce vomiting. Seek medical attention immediately.

Rev. 1/99

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 6-24-98
REPLACES: 09-25-90

IDENTIFICATION

PRODUCT NAME: STAR SUPER CIP
COMPOSITION: CAUSTIC, PHOSPHATES, SODIUM DICHLOROISOCYANURATE

This product requires submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). Components present in this product at a level which could require reporting under the statute are:

HAZARDOUS INGREDIENTS:	**%**	**TLV LIMIT IN AIR**
Caustic Soda (CAS 1310-73-2)	30	2 mg/m3 (ACGIH) 2 mg/m3 (OSHA)
Sodium Dichloroisocyanurate (CAS 51580-86-0)	3	None

PHYSICAL DATA

APPEARANCE: White Powder
ODOR: Slight Chlorine
SOLUBILITY IN WATER: <10%
pH of 1% Solution: 13.4
BULK DENSITY: 75 lbs./cu ft

FIRE AND EXPLOSION DATA

FLAMMABILITY: Non - combustible, substance itself does not burn but may decompose to produce corrosive and/or toxic chlorine fumes.

EXTINGUISHING MEDIA: Water, Carbon Dioxide, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contact with soft metals may evolve flammable hydrogen gas. Containers may explode when heated, under fire conditions.

NFPA HAZARD RATING: Health Rating 3; Flammability 0; Reactivity 1

HEALTH HAZARD DATA

- CAUSES SEVERE BURNS TO SKIN AND EYES. HARMFUL OR FATAL IS SWALLOWED.
- TOXIC; inhalation, ingestion, or skin contact with material may cause severe injury or death.
- Contact with molten substance may cause severe burns to skin and eyes.
- Avoid contact with skin and eyes.
- Effects of contact or inhalation may be delayed.
- Fire may produce irritating, corrosive, and/or toxic gas.
- Runoff from fire control or dilution water may be corrosive.
- Do not mix with acids or a violent reaction may occur forming chlorine gas.
- Do not mix with hot water which may cause a violent reaction.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Flush with cool running water for at least 15 minutes. For eye exposure irrigate with saline solution. Get medical attention as soon as possible.

SKIN CONTACT: Flush with cool running water for at least 5-10 minutes. If irritation develops get medical attention.

INGESTION: If conscious, drink large amounts of water or milk, followed by citrus juice or diluted vinegar. Get medical attention immediately. DO NOT induce vomiting.

INHALATION: Move victim to fresh air. Call emergency medical care. Apply artificial respiration if victim is not breathing.

SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS: Special ventilation is not required under normal use. Use local exhaust ventilation where dust, mist or spray may be generated.
Note: Where carbon monoxide or other reaction products may be generated, special ventilation may be required.

RESPIRATORY: Respiratory protection is not required under normal use. Use NIOSH/MSHA approved respirator where dust, mist, or spray may be generated.

EYE: Wear chemical safety goggles plus full face shield to protect against splashing.

GLOVES: Chemical Resistant gloves should be worn and may be decontaminated by washing with mild soap and water. Natural and butyl rubber have been suggested.

OTHER CLOTHING AND EQUIPMENT: Impervious protective clothing and chemically resistant safety shoes should be worn to minimize contact. Wash contaminated clothing with soap and water and dry before reuse. Showers and eyewash facilities should be in close proximity.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Acids, soft metals, organic compounds, and ammonia compounds.

STABILITY: Product is stable.

POLYMERIZATION: Will not occur.

DECOMPOSITION PRODUCTS: May give off chlorine gas or phosphorus oxide at high heat (fire conditions).

SPILL OR LEAK PROCEDURES

SPILL: Leaks should be stopped. Spills should be contained and cleaned up immediately. Liquid spills should be removed by using a vacuum truck. Solid spills should be scooped up and placed in approved containers for disposal. Neutralize remaining traces of material with any dilute inorganic acid such as hydrochloric, sulfuric, nitric, phosphoric, or acetic acid. The spill area should then be flushed with water followed by liberal covering of sodium bicarbonate. All clean-up material should be removed and placed in approved containers, labeled and stored in a safe place to await proper treatment and disposal. Spills on areas other than pavement, e.g. dirt or sand, may be handled by removing the affected soils and placing in approved containers. Persons performing clean-up work should wear adequate personal protective equipment and clothing. Spills or releases should be reported if required, to the appropriate local, state, and federal regulatory agencies.

CAUTION: Star Super CIP may react violently with acid water.

DISPOSAL: The materials resulting from clean-up operations may be hazardous waste and, therefore, subject to specific regulations. Package, storage, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state, and local health environmental regulation. Shipments of waste materials are subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state and local agencies receive proper notification of spill and disposal methods.

TRANSPORTATION

DOT HAZARD CLASSIFICATION: Corrosive Solid N.O.S.
8, UN1759, PG II

PLACARD REQUIRED: Corrosive, UN1759, Class 8

LABEL REQUIRED: Corrosive, Class 8, Label as required by OSHA Hazard Communication Standard, and any application state and local regulations.

FIVE STAR AFFILIATES

Five Star Brewery Services L.L.C.
Five Star Chemical Company
Five Star Food Grade L.L.C.
Five Star Packaging & Equipment L.L.C.
Five Star Products & Services L.L.C.

Five Star Affiliates, Inc.
6731 East 50th Avenue
Commerce City, CO 80022
(303) 287-0186 • (800) 782-7019
Fax (303) 287-0391

"Leaders in Cleaning Technology since 1980"

STAR SUPER CIP

BENEFITS

1. Highly Concentrated Chlorinated Caustic Cleaner
2. Effectively Removes Protein Staining
3. Low Foaming Surfactant for Quick Soil Penetration
4. USDA accepted in all areas.

DESCRIPTION

STAR SUPER CIP is a highly chlorinated caustic cleaner developed specifically for the brewery industry. It is designed to be a low foaming CIP cleaner that will effectively remove protein soils as well as stains from Lauter Tuns and Brew Kettles at low concentrations. The amount of chlorine in this product will control the bluing found on stainless steel after heat processing of protein based products.

PROPERTIES

APPEARANCE	WHITE TO YELLOW GRANULAR
ODOR	CHLORINE TYPICAL
FOAM	LOW
% AVAILABLE CHLORINE	1.75 MINIMUM
TOTAL ALKALINITY	30.0 MINIMUM

GENERAL USE DIRECTIONS

In CIP use, the concentration of Star Super CIP will vary depending on the soil load of the vessel. The following concentrations are recommended.

Brew Kettles and Lauter Tuns: Use 2 ounces per gallon of water for single brew cleaning. For multiple brew cleaning use 3 ounces per gallon of water. Circulate solution for 25 to 35 minutes at temperatures between 140°-160° F. Rinse with potable water.

Fermenters: Use 1 to 2 ounces per gallon of water. Circulate solution for 25 -35 minutes at temperatures between 140° -160° F. Rinse with potable water.

COMPLIANCE

The U. S. Department of Agriculture for use in official meat, poultry, rabbit, and egg processing establishments authorizes STAR SUPER CIP. After use, surfaces must be rinsed with potable water.

SAFETY

DANGER: Contains Sodium Hydroxide and Sodium Dichlor-S-Triazinetroine. Avoid contact with skin and eyes. Do not get on clothing. Rinse thoroughly after use. Avoid breathing dust. Wear protective clothing when handling this product; gloves, goggles and boots. DO NOT MIX WITH ACIDS, A VIOLENT REACTION OCCURS, FORMING CHLORINE GAS.

For skin and eye contact flush with plenty of cool water for at least 15 minutes. If eye contact occurs seek medical attention immediately. Eye should be irrigated with saline solution for one hour.

For ingestion dilute by drinking large amounts of milk, if milk is not available use water. Do not induce vomiting. Seek medical attention immediately.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC.
6731 E. 50TH AVENUE
COMMERCE CITY, CO. 80022

PHONE: 303-287-0186
MSDS DATE: 10-12-99
REPLACES: NEW

IDENTIFICATION

PRODUCT NAME: STAR-XENE
COMPOSITION: BUFFERED CHLORINE DIOXIDE SOLUTION

This product does not require submission of an annual report on the release of toxic chemicals that appear in 40 CFR 372 (for SARA 313).

INGREDIENTS:	CAS NO.	% Wt.	PEL-OSHA	TLV-ACGIH
OXYCHLORINE COMPOUNDS	IN TSCA	1-10	None Established	None Established
BUFFER (S)	IN TSCA	1-5	None Established	None Established

PHYSICAL DATA

APPEARANCE: Clear pale yellow green solution
SOLUBILITY IN WATER: Complete
EVAPORATION RATE: Not determined
SPECIFIC GRAVITY: (H_20=1) : 1.065 to 1.095
ODOR: Chlorine or ozone like odor
pH of CONCENTRATE: 8.5 to 9.5
BOILING POINT: 105° C
VAPOR PRESSURE: (mm Hg): Approximates water

FIRE AND EXPLOSION DATA

FLAMMABILITY: Contact with acids, organic materials, reducing agents or chlorine Donors will produce chlorine dioxide gas and heat. The lower explosive limit (LEL) for chlorine dioxide is 10%. Flush area with large amounts of air to keep the chlorine dioxide concentration below 10%.
If allowed to dry, this product can be easily ignited by heat or friction. Do not allow this product to dry on cloth. Oxidation can cause a fire hazard.

EXTINGUISHING MEDIA: Flood with water. Apply water from a protected location or from a safe distance.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Oxidizing material. Increases flammability of combustible, organic or other readily oxidizable materials.

NFPA HAZARD RATING: Health 2; Flammability 1; Reactivity 0

HEALTH HAZARD DATA

- Causes eye, skin and respiratory tract irritation.
- May cause burns
- Harmful if swallowed. Causes irritation of the gastrointestinal tract, nausea, vomiting and diarrhea.
- Oxidizing material. Increases flammability of combustible, organic or other readily oxidizable materials.
- Contact with acids, organic materials, reducing agents or chlorine donors will produce chlorine dioxide gas and heat. The lower explosive limit (LEL) for chlorine dioxide is 10%. Flush area with large amounts of air to keep the chlorine dioxide concentration below 10%.
- If allowed to dry, this product can be easily ignited by heat or friction.
- Do not allow this product to dry on cloth. Oxidation can cause a fire hazard.

EMERGENCY & FIRST AID PROCEDURES

EYE CONTACT: Immediately flush with plenty of water for at least 15 minutes. Hold eyelids open while flushing. If irritation persists, call a physician.

SKIN CONTACT: Immediately wash off in flowing water or shower. To prevent fire, rinse contaminated clothing until chemical is fully removed. If irritation persists, get medical attention.

INGESTION: If person is conscious and able to swallow, give large amounts of water to dilute. If vomiting occurs, keep head below hips to help prevent aspiration. Get medical attention immediately.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician..

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: A NIOSH/MSHA-approved respirator, suitable for use in a chlorine or chlorine dioxide atmosphere, as necessary. If respiratory protection is used, follow all requirements for respiratory programs set forth in OSHA regulations (29 CFR 1910.139).

VENTILATION SYSTEM: General; local exhaust ventilation as necessary to control any air contaminants to within their PELs or TLVs during the use of this product.

SKIN PROTECTION: Body protection as necessary to prevent skin contact.

EYE PROTECTION: Safety glasses (with side shields).

PROTECTIVE GLOVES: Rubber or neoprene gloves.

REACTIVITY DATA

INCOMPATIBLE MATERIALS: Contact with acids, organic materials, reducing agents and chlorine donors will toxic chlorine dioxide.

STABILITY: Product is stable.

POLYMERIZATION: Will not occur.

DECOMPOSITION PRODUCTS: Thermal decomposition will produce toxic chlorine dioxide gas.

SPILL OR LEAK PROCEDURES

SPILL: See Emergency/ First Aid Procedures and Special Protection Information for hazards and exposure controls. Flush with water to dilute. Do not allow contact with rags, paper or other oxidizable materials. For large spills, evacuate area, contain liquid and transfer to closed polyethylene drums. Prevent contact With oxidizers and acids. Do not allow to dry. Keep out of water supply. Flush area with water after Liquid is removed.

****Note**** In the event of an accidental release of this material, the above procedures should be followed. Additionally, proper exposure controls and personal protection equipment should be used.

DISPOSAL: US EPA Waste Number: Not Regulated
Federal, state and local disposal laws and regulations will determine the proper waste disposal/recycling /reclamation procedure. All waste materials should be reviewed to determine the applicable hazards (testing may be necessary). Disposal requirements are dependent on the hazard classification and will vary by location and the type of disposal selected.

****NOTE**** Chemical additions, processing or otherwise altering this material may make the waste management information presented above incomplete, inaccurate or otherwise inappropriate.

As local regulations may vary; all waste must be disposed/recycled/reclaimed in accordance with federal, State, and local environmental control regulations.

TRANSPORTATION

INTERNATIONAL
UN Number: Not regulated

UNITED STATES
EPA Waste Number: Not Regulated
DOT Classification: Not Regulated

CANADA
PIN Number: Not Regulated
TDG Class: Not Regulated

EC
DGL: Not Determined

FIVE STAR AFFILIATES

Five Star Brewery Services L.L.C.
Five Star Chemical Company
Five Star Food Grade L.L.C.
Five Star Packaging & Equipment L.L.C.
Five Star Products & Services L.L.C.

Five Star Affiliates, Inc.
6731 East 50th Avenue
Commerce City, CO 80022
(303) 287-0186 • (800) 782-7019
Fax (303) 287-0391

"Leaders in Cleaning Technology since 1980"

STAR-XENE

BREWERY SANITIZER

BENEFITS

- Economical
- Broad Spectrum Killer
- Leaves no odor or off taste
- Safe to handle
- No rinse under 200 ppm

DESCRIPTION

Star-Xene is a 5% solution of stabilized chlorine dioxide. It is at 2½ times stronger than other stabilized chlorine dioxide products that many brewers are familiar with. The higher concentration allows for economical shipping costs. This higher concentration allows the customer to purchase less material for the money. This double benefit makes *Star-Xene* one of the most economical sanitizers on the market.

Star-Xene is a mild bactericide at its normal pH. When it is acidified to a pH between 4 and 7, it becomes a very active sanitizer. A concentration as low as 20 ppms available ClO_2 can kill most bacteria. Most molds and yeast will require a concentration of 100 to 200 ppms with a two-minute contact time. The concentration and time will depend on the actual species of organism and the pH of the solution. *Star-Xene* has no foam and dissipates quickly making it an excellent CIP final rinse sanitizer. It breaks down into simple organic compounds when disposed. It can be injected directly into lines with the use of an injection pump or can be dosed on a batch method as described on the back page.

Updated: 02/24/00

PROPERTIES

- **APPEARANCE AND ODOR:** Clear to light yellow with a faint chlorine odor.
- **pH Of CONCENTRATE**: 8.5 TO 9.5
- **SOLUBILITY:** Completely soluble in water
- **COMPATIBILITY:** Do not lower the pH of this product below 3 or volatile chlorine dioxide gas will evolve.

GENERAL USE DIRECTIONS

Pre-Activate Star-Xene: add 6 grams of Citric Acid to one gallon of Star-Xene concentrate. DO NOT USE ANY OTHER TYPE OF ACID for this Pre-Activation step.

For CIP and Soaking:
To every 10 gallons of water, add 1.2 ounces of ***Star-Xene***, stir to blend, Check pH to be sure it is below 7. CIP for at least 20 minutes.

For Kegs:
To every 10 gallons of water, add 1.2 ounces of ***Star-Xene***, stir to blend, then add 1 ounce of Citric Acid, or 1/3rd of an ounce of food grade Phosphoric Acid. Wait 15 minutes to completely activate. Give kegs two minutes of contact time.

For Bottle Lines:
To every 10 gallons of water, add 0.5 ounces of ***Star-Xene***, stir to blend, then add 1 ounce of Citric Acid, or 1/3rd of an ounce of food grade Phosphoric Acid. Wait 15 minutes to completely activate.

Please call Five Star Chemicals to help customize ***Star-Xene*** for your brewery.

SAFETY

CAUTION: May cause slight skin, eye, or mucous membrane irritation. For eye and skin contact flush thoroughly with cool water for 15 minutes. If redness or irritation develops contact a physician. For ingestion dilute by drinking large amounts of milk, if milk is not available use water. Do not induce vomiting. If nausea develops see a physician immediately.

DO NOT ALLOW STAR-XENE TO DROP BELOW 3.0 pH.

STAR-XENE is an oxidizer it must be stored away from acids, other chlorine compounds, sulfite compounds, organic solvents, and combustible/flammable materials exposure to these concentrates can evolve poisonous chlorine dioxide gas. Do not allow this product to evaporate into a crystalline salt, the salt is an explosive.

When handling any chemical always wear protective clothing. Wash after use with soap and water, if material gets on clothing rinse thoroughly with water. If contact of this product occurs to the skin or eye flush thoroughly with cool running water for at least 15 minutes. In the event of irritation or redness seek medical attention.

MATERIAL SAFETY DATA SHEET

FIVE STAR AFFILIATES, INC. **PHONE: 303-287-0186**
6731 E. 50 TH AVENUE **MSDS DATE: 1/29/99**
COMMERCE CITY, CO 80022 **REPLACES: 07-14-90**

IDENTIFICATION

PRODUCT NAME: SUPER MOSS
SYNONYMS: Kettle Gel, Clarifier, Kettle Coagulent
Formula: 3, 6 Anhydro-D-galactose
Composition: Carrageenan standardized with Fruit Sugar

HAZARDOUS INGREDIENTS: None known

PHYSICAL & CHEMMICAL PROPERTIES

APPEARANCE: Cream to white powder **ODOR: Slight marine odor**
SOLUBILITY: 30% Max **VAPOR PRESSURE: N/A**
BOILING POINT: N/A **pH (1% SOLUTION0 6.5-10.0**

HAZARD SPECIFICATIONS

HEALTH HAZARDS: **None known**
DOT HAZARD CLASS: **N/A**
EPA HAZARD CLASS: **N/A**

SAFE USE DATA

PROTECTIVE EQUIPTMENT TYPES:
EYE: **None required**
SKIN: **Dust mask if dust is a nuisance**
GLOVES: **None required**
OTHERS: **None**
VENTILATION: **General mechanical – normal**
Local exhaust – recommended when dust is generated

PRECAUTIONS

HANDLING & STORAGE: **Keep container tightly closed after use.**
OTHER: **Store at room temperature in dry area.**

EMERGENCY & FIRST AID PROCEDURES

FIRE:
EXTINGGIUSHING MEDIA: **Water, Carbon Dioxide, dry chemicals**
SPECIAL PROCEDURES: **None known**
UNUSUAL HAZARDS: **None known**

EXPOSURE:
FIRST AID: **No known medical conditions by normal exposure routes.**

SPILLS:
STEPS TO BE TAKEN: **Sweep or flush with water**
WASTE DISPOSAL: **Sweep or flush to sanitary sewer**

PHYSICAL HAZARD DATA

FLAMMIBILITY: **N/A**
STABILITY: **Stable**
HAZARDOUS POLYMERIZATION: **None**

HEALTH HAZARD DATA

EFFECTS OF EXPOSURE: **Inhalation of dust may be irritating to upper respiratory passages.**
TREATMENT: **N/A**

FIVE STAR PRODUCTS & SERVICES, LLC.

6731 East 50th Avenue
Commerce City, CO 80022

(303) 287-0186 • (800) 782-7019
Fax (303) 287-0391

"Simply the Best"

SUPER MOSS™

(Carrageenan)
A Food Grade Kettle Coagulant
Patents Pending

BENEFITS

1. Formulated to mix rapidly with cold water
2. Attracts positively charged haze forming proteins
3. Safe to handle
4. Can help reduce haze in finished beer
5. Carries through to primary fermentation.

DESCRIPTION

SUPER MOSS is a negatively-charged, red seaweed based, Kapa and Lambda carrageenan coagulant designed to attract the positively-charged, haze forming proteins together in the brew kettle and primary fermenter then settle out. Properly used, it can help reduce chill haze.

PROPERTIES

APPEARANCE	WHITE POWDER
MIXING ABILITY	EXCELLENT
FOAM	NONE

GENERAL USE DIRECTIONS

Use at the rate of 1 oz / 10 bbls. You may use less, but do not use more.
Fill a quart jar, which has a tight fitting lid, half-full of cold water
Pour measured amount of SUPER MOSS into water.
Put on lid and shake.
Let sit about 15 minutes.
Add in the last half-hour of the boil.

SAFETY

CAUTION: Dust will irritate mucus membrane. Use caution when handling. If contact with eyes occurs, flush with water for 15 minutes and get prompt medical attention.

Rev. 12/98