

MSDS Data

SULFUR (MOLTEN)

PC00845

Cherry Point Information

ARCO Hazard Rating:

Health	Fire	Reactivity
4	1	0

4-Extreme, 3-High, 2-Moderate,
1-Slight, 0-No Significant Hazard

ARCO Hazard Warning:

- Combustible
- Contains/Emits H2S
- Highly Toxic
- Irritant
- May Cause Burns

Nickname(s):

Sulfur (Molten)

Cherry Point Refinery Personal Protective Equipment (PPE)

Machinist Field Work: When opening pump case, wear fresh air gear and neoprene or nitrile gloves. If pump has been flushed and monitored to show that no H2S is present, fresh air is not required.

Machinist Shop Work: For disassembly work in the shop, use disposable nitrile gloves if liquid contamination is present on pump parts.

DOT Information:

Shipping Name: Sulfur, Molten
 Hazard Class: 4.1, PG III
 UN/NA#: NA 2448

*** End of Cherry Point Information ***

GENERAL INFORMATION (PROD & CO ID)

DATE: 9809 CP

MSDS NO.: APPC845 VER. 3
 REV. DATE: 09/03/1998

IMPORTANT: READ THIS MSDS BEFORE HANDLING AND DISPOSING OF THIS PRODUCT AND PASS THIS INFORMATION ON TO EMPLOYEES, CUSTOMERS, AND USERS OF THIS PRODUCT.

MATERIAL IDENTITY: SULFUR (MOLTEN)
 TRADE NAME(S): SULFUR (MOLTEN)
 OTHER NAME(S): SULPHUR, BRIMSTONE
 CHEMICAL DESCRIPTION: THIS MATERIAL IS A HOT YELLOW LIQUID CONSISTING OF SULFUR. MATERIAL AT AMBIENT TEMPERATURE WILL FORM A SOLID.

MANUFACTURER'S ADDRESS: ARCO PRODUCTS COMPANY
 DIVISION OF ATLANTIC RICHFIELD COMPANY
 333 SOUTH HOPE STREET
 LOS ANGELES, CALIFORNIA 90071

TELEPHONE NUMBERS: EMERGENCY
 213-222-3212 LA POISON
 800-424-9300 CHEMTREC
 CUSTOMER SERVICE
 800-322-2726 INFO ONLY

HEALTH & FIRST AID (HAZARD IDENTIFICATION)

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IMMEDIATE HAZARDS
DANGER

HEATED MATERIAL MAY CAUSE THERMAL BURNS. PRODUCT IS NORMALLY STORED AND SHIPPED HOT (AP 265F TO 285F). WEAR PROPER PROTECTIVE CLOTHING/EQUIPMENT INCLUDING EYE PROTECTION.

CAUTION! HEATED MATERIAL MAY RELEASE HYDROGEN SULFIDE GAS WHICH MAY ACCUMULATE TO POTENTIALLY LETHAL CONCENTRATIONS IN ENCLOSED AIR SPACES.

HYDROGEN SULFIDE HAS A CHARACTERISTIC ODOR OF "ROTTEN EGGS." HOWEVER, VAPOR CONCENTRATIONS OF HYDROGEN SULFIDE ABOVE 50 PPM, OR PROLONGED EXPOSURE AT LOWER CONCENTRATIONS MAY DULL THE SENSE OF SMELL TO THE POINT THAT THE SMELL OF GAS MAY NOT BE DETECTED. DO NOT DEPEND ON THE SENSE OF SMELL TO DETECT HYDROGEN SULFIDE!

MOLTEN SULFUR MAY EVOLVE (H₂S) HYDROGEN SULFIDE, A FLAMMABLE TOXIC AND POTENTIALLY DEADLY GAS. AVOID BREATHING VAPORS OR FUMES. VAPOR MAY BE HAZARDOUS OR FATAL! (SEE SECTIONS HEALTH & FIRST AID (EMERGENCY & FIRST AID) AND TOXICOLOGICAL INFORMATION)

CONTACT WITH DUST FROM COOLED MATERIAL CAN IRRITATE EYES, SKIN AND RESPIRATORY TRACT.

SEE FIRE & EXPLOSION HAZARD DATA (FIRE & EXPLOSION) SECTION FOR MORE INFORMATION.

ACUTE HEALTH HAZARDS

ROUTES OF EXPOSURE / SIGNS AND SYMPTOMS

INHALATION (PRIMARY): HEATED MATERIAL MAY RELEASE HYDROGEN SULFIDE. EXPOSURE TO MODERATE AIRBORNE CONCENTRATIONS OF HYDROGEN SULFIDE (LESS THAN 50 PPM) CAN RESULT IN IRRITATION OF THE EYES, NOSE AND THROAT, HEADACHE, DIZZINESS, SHORTNESS OF BREATH, NAUSEA AND NERVOUSNESS. EXPOSURE TO HYDROGEN SULFIDE VAPOR ABOVE 200 PPM MAY CAUSE IRRITATION OF MUCOUS MEMBRANES, INFLAMMATION OF THE LUNGS, ACCUMULATION OF FLUID IN THE LUNGS, IRREGULAR HEARTBEATS, UNCONSCIOUSNESS WITH CONVULSIONS OR IMPAIRED BREATHING WITH SUFFOCATION. EXPOSURE TO HIGHER CONCENTRATIONS OF HYDROGEN SULFIDE VAPOR (ABOVE 500 PPM) MAY CAUSE RAPID DEATH.

DUSTS FROM COOLED MATERIAL CAN CAUSE IRRITATION OF THE NOSE, THROAT, AND LUNGS, SNEEZING, RUNNY NOSE, SORE THROAT, COUGH, CHEST PAIN, DIFFICULTY BREATHING, AND LIGHTHEADEDNESS.

EYE CONTACT (PRIMARY): DIRECT CONTACT WITH HOT MATERIAL WILL CAUSE SEVERE THERMAL BURNS.

HEATED MATERIAL MAY RELEASE HYDROGEN SULFIDE. EXPOSURE TO HYDROGEN SULFIDE VAPORS ABOVE 10 PPM MAY RESULT IN PAINFUL INFLAMMATION OF THE EYES, TEARING, AND INCREASED SENSITIVITY TO LIGHT. HIGHER VAPOR CONCENTRATIONS (150-300 PPM) MAY CAUSE POTENTIALLY SEVERE EYE DAMAGE.

DUSTS FROM COOLED MATERIAL CAN CAUSE IRRITATION OF THE EYE, PERMANENT DAMAGE TO THE LENS OR CORNEA, TEARING, BLURRED VISION, BURNING OR SCRATCHY SENSATION, AND SENSITIVITY TO LIGHT.

SKIN CONTACT: CONTACT WITH HOT MATERIAL MAY CAUSE THERMAL BURNS. HEATED MATERIAL MAY RELEASE HYDROGEN SULFIDE. SKIN CONTACT WITH HYDROGEN SULFIDE GAS OR IN SOLUTION MAY RESULT IN PAIN AND REDNESS.

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DUSTS FROM COOLED MATERIAL CAN CAUSE IRRITATION OF THE SKIN, SENSITIZATION, REDNESS, CRACKING, DRYNESS, CRUSTY SKIN, AND ULCERS. CONTACT WITH HOT MATERIAL MAY CAUSE THERMAL BURNS.

INGESTION: CONTACT WITH HOT MATERIAL MAY CAUSE THERMAL BURNS.

MAY CAUSE METABOLIC ACIDOSIS OR BE CONVERTED BY INTESTINAL BACTERIA TO HYDROGEN SULFIDE, A TOXIC COMPOUND (SEE INHALATION SECTION ABOVE).

SUMMARY OF CHRONIC HAZARDS AND SPECIAL HEALTH EFFECTS: PERSONNEL WITH PREEXISTING CENTRAL NERVOUS SYSTEM (CNS) DISEASE, SKIN DISORDERS, OR CHRONIC RESPIRATORY DISEASES SHOULD BE EVALUATED BY AN APPROPRIATE HEALTH PROFESSIONAL BEFORE EXPOSURE TO THIS MATERIAL.

REPEATED AND PROLONGED EXPOSURE TO DUSTS FROM COOLED MATERIAL MAY CAUSE IRRITATION OF THE SKIN, RESPIRATORY TRACT AND SINUSES, SKIN SENSITIZATION, COUGH, PHLEGM, ASTHMA, IMPAIRED LUNG FUNCTION, EMPHYSEMA, AND THIO-PNEUMONCONIOSIS (RESPIRATORY CONDITION CAUSED BY SULFUR DUST IN THE LUNGS).

HEALTH & FIRST AID (EMERGENCY & FIRST AID)

INHALATION: IMMEDIATELY REMOVE PERSONNEL TO AREA OF FRESH AIR. FOR RESPIRATORY DISTRESS, GIVE OXYGEN RESCUE BREATHING OR ADMINISTER CPR (CARDIOPULMONARY RESUSCITATION) IF NECESSARY. OBTAIN PROMPT MEDICAL ATTENTION.

EYE CONTACT: FLUSH EYES WITH CLEAN, LOW-PRESSURE WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING THE EYELIDS. IF PAIN OR REDNESS PERSISTS AFTER FLUSHING, OBTAIN MEDICAL ATTENTION.

SKIN CONTACT: IRRIGATE WITH WATER. SEEK MEDICAL ATTENTION AS BURNS CAN DEVELOP.

INGESTION: SEEK IMMEDIATE MEDICAL ATTENTION.

EMERGENCY MEDICAL TREATMENT PROCEDURES: SEE ABOVE PROCEDURES.

TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION: THE INFORMATION FOUND IN THIS SECTION IS WRITTEN FOR MEDICAL, TOXICOLOGY, OCCUPATIONAL HEALTH AND SAFETY PROFESSIONALS. THIS SECTION PROVIDES TECHNICAL INFORMATION ON THE TOXICITY TESTING OF THIS OR SIMILAR MATERIALS OR ITS COMPONENTS. IF CLARIFICATION OF THE TECHNICAL CONTENT IS NEEDED, CONSULT A PROFESSIONAL IN THE AREAS OF EXPERTISE LISTED ABOVE.

IF BURNED, THIS MATERIAL RELEASES SULFUR DIOXIDE. SULFUR DIOXIDE CAN CAUSE SEVERE IRRITATION OF THE EYE, NOSE, THROAT, AND LUNGS, SNEEZING, BLOODY OR RUNNY NOSE, SORE THROAT, COUGH, CHEST PAIN, DIFFICULTY BREATHING, LARYNGEAL AND PULMONARY EDEMA, ASTHMATIC ATTACK, CHOKING SENSATION, CHEMICAL PNEUMONIA, SYSTEMIC ACIDOSIS, RESPIRATORY PARALYSIS AND FAILURE, AND POSSIBLY DEATH. REPEATED AND PROLONGED EXPOSURE TO SULFUR DIOXIDE CAN CAUSE CHRONIC BRONCHITIS, EMPHYSEMA, IMPAIRED LUNG FUNCTION AND DENTAL DISEASE.

COMPOSITION & EXPOSURE LIMITS (COMPONENTS & EXP LIMITS)

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COMPONENT1	CAS NO.	% COMPOSITION BY VOLUME2	EXPOSURE LIMITS			UNITS	TYPE
			ACGIH TLV	OSHA PEL3	ARCO EL		
SULFUR	7704-34-9	EQ 100	N/AP	N/AP	N/AP		

WHICH CONTAINS:

HYDROGEN SULFIDE

7783-06-4	AP 0.01	15	15	N/AP	PPM	STEL
		10	10	N/AP	PPM	TWA

OTHER APPLICABLE EXPOSURE GUIDELINES:

SULFUR DIOXIDE

7446-09-5		5	5	N/AP	PPM	STEL
		2	2	N/AP	PPM	TWA

SINCE SPECIFIC EXPOSURE STANDARDS OR CONTROL LIMITS HAVE NOT BEEN ESTABLISHED FOR THIS MATERIAL, THE EXPOSURE LIMITS SHOWN HERE ARE SUGGESTED AS MINIMUM CONTROL GUIDELINES.

- 1 CARCINOGEN DISPLAYED AFTER COMPONENT NAME. LISTED BY (1) NTP, (2) IARC, (3) OSHA, (4) OTHER
- 2 SEE ABBREVIATIONS ON LAST PAGE.
- 3 THE OSHA EXPOSURE LIMITS WERE CHANGED IN 1993 DUE TO A FEDERAL COURT RULING. ARCO HAS CHOSEN TO LIST THE 1989 OSHA EXPOSURE LIMITS IN THIS DOCUMENT AS THEY ARE GENERALLY MORE STRINGENT AND THEREFORE MORE PROTECTIVE THAN THE CURRENT EXPOSURE LIMITS. (REFER TO 29 CFR 1910.1000).

FIRE & EXPLOSION HAZARD DATA (FIRE & EXPLOSION)

FLASH POINT (METHOD)*: AP 334F +
 AUTOIGNITION TEMPERATURE (METHOD)*: AP 450F
 FLAMMABLE LIMITS (% VOL. IN AIR)*: LOWER: AP 3.4 +
 UPPER: AP 46 +

* AT NORMAL ATMOSPHERIC TEMPERATURE AND PRESSURE
 + BASED ON NFPA 655

NFPA HAZARD RATING: HEALTH: 2 = MODERATE
 FIRE: 1 = SLIGHT
 REACTIVITY: 0 = INSIGNIFICANT
 SPECIAL: = ---

FIRE AND EXPLOSION HAZARDS: COMBUSTIBLE LIQUID. COMBUSTION BY-PRODUCTS INCLUDE SULFUR DIOXIDE GAS. HYDROGEN SULFIDE IS RELEASED FROM MOLTEN SULFUR. PYROPHORIC IRON SULFIDE COMPOUNDS MAY FORM FROM IMPURITIES IN THE SULFUR.

EXTINGUISHING MEDIA: STEAM, CARBON DIOXIDE, AND SAND OR FINE EARTH FOR SMOTHERING; WATER SPRAY OR FOG FOR COOLING.

SPECIAL FIREFIGHTING PROCEDURES: APPROACH FIRE FROM UPWIND TO AVOID HAZARDOUS VAPORS AND TOXIC DECOMPOSITION PRODUCTS. USE FINE SPRAY OR FOG TO CONTROL FIRE BY PREVENT ITS SPREAD AND ABSORBING SOME OF ITS HEAT. WATER MAY CAUSE FROTHING OF MOLTEN SULFUR.

WEAR FULL PROTECTIVE CLOTHING AND POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS.

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FIRE & EXPLOSION HAZARD DATA (STABILITY & REACTIVITY)

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: NOT EXPECTED TO OCCUR

OTHER CHEMICAL REACTIVITY: REACTS WITH STRONG OXIDIZING MATERIALS, HYDROCARBONS AND METAL POWDERS.

CONDITIONS TO AVOID: AVOID TEMPERATURES ABOVE 309 F TO PREVENT FORMING FLAMMABLE OR EXPLOSIVE VAPOR MIXTURES IN AIR. IF ALLOWED TO BECOME SOLID, AVOID CREATION OF FINELY DIVIDED DUSTS IN AIR. (SEE NFPA 655)

MATERIALS TO AVOID: HYDROCARBONS, STRONG OXIDIZERS AND METAL POWDERS. HAZARDOUS OR DECOMPOSITION PRODUCTS: SULFUR BURNS TO FORM SULFUR DIOXIDE. SULFUR CAN REACT WITH HYDROCARBONS TO PRODUCE HYDROGEN SULFIDE, CARBON DISULFIDE AND OTHER COMPOUNDS OF SULFUR.

PHYSICAL & CHEMICAL DATA (PHYSICAL & CHEMICAL PROPERTIES)

BOILING POINT: AP 832F
VISCOSITY UNITS, TEMP. (METHOD): N/AP
DRY POINT: N/AP
FREEZING POINT: AP 239F TO 246F
VAPOR PRESSURE, TEMP. (METHOD): AP 0.01 AT 284F (MM HG)
VOLATILE CHARACTERISTICS: NEGLIGIBLE
SPECIFIC GRAVITY (H2O = 1 AT 39.2F): ... AP 2
VAPOR SP. GR.: (AIR = 1.0 AT 60 - 90F):
..... LT 1.2 (BASED ON HYDROGEN SULFIDE)
SOLUBILITY IN WATER: INSOLUBLE
PH: N/AP

APPEARANCE AND ODOR: HOT, YELLOW-COLORED LIQUID; ESSENTIALLY ODORLESS. IMPURITIES MAY IMPART A HYDROGEN SULFIDE ODOR.

OTHER PHYSICAL AND CHEMICAL PROPERTIES: MOLTEN SULFUR IS NORMALLY STORED AT 265F TO 285F. LIQUID DENSITY = 111.7 LBS/CU FT AT 280F.

MFG. PROTECTIVE GEAR (EXPOSURE CONTROLS/PERSONAL PROTECTION)

ENGINEERING CONTROLS: USE ADEQUATE VENTILATION TO KEEP VAPOR CONCENTRATIONS OF THIS MATERIAL BELOW THE OCCUPATIONAL EXPOSURE LIMITS SHOWN IN COMPOSITION & EXPOSURE LIMITS (COMPONENTS & EXP LIMITS) SECTION. SEE NFPA 655 'PREVENTION OF SULFUR FIRES AND EXPLOSIONS' FOR APPLICABLE INFORMATION ON ELECTRICAL/ENGINEERING CONTROLS.

RESPIRATORY: WHERE THERE IS POTENTIAL FOR EXPOSURE TO HYDROGEN SULFIDE GAS IN EXCESS OF THE PERMISSIBLE EXPOSURE LIMIT, A NIOSH/MSHA-APPROVED SUPPLIED-AIR RESPIRATOR OPERATED IN POSITIVE PRESSURE MODE SHOULD BE WORN.

IF HYDROGEN SULFIDE GAS IS NOT PRESENT IN EXCESS OF PERMISSIBLE EXPOSURE LIMITS, A NIOSH/MSHA-APPROVED AIR-PURIFYING RESPIRATOR WITH AN ORGANIC VAPOR CARTRIDGE MAY BE PERMISSIBLE UNDER CERTAIN CIRCUMSTANCES. FOR VAPOR OR MIST CONCENTRATIONS IN EXCESS OF THE EXPOSURE LIMITS IN COMPOSITION & EXPOSURE LIMITS (COMPONENTS & EXP LIMITS) SECTION, USE ONLY A NIOSH/MSHA - APPROVED POSITIVE PRESSURE AIR SUPPLIED OR SELF CONTAINED BREATHING APPARATUS. NOTE: THE PROTECTION PROVIDED BY AIR-PURIFYING RESPIRATORS IS LIMITED. USE A POSITIVE PRESSURE AIR-SUPPLIED RESPIRATOR IF THERE IS ANY POTENTIAL FOR AN UNCONTROLLED RELEASE, IF EXPOSURE LEVELS ARE NOT KNOWN, OR IF CONCENTRATIONS EXCEED THE PROTECTION LIMITS OF THE AIR-PURIFYING RESPIRATOR. CONSULT A

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HEALTH AND SAFETY PROFESSIONAL FOR GUIDANCE IN RESPIRATOR SELECTION.
RESPIRATOR USE SHOULD COMPLY WITH OSHA 29 CFR 1910.134.

EYES: EYE PROTECTION SUCH AS CHEMICAL-TYPE GOGGLES OR FACE MASK SHOULD BE WORN WHENEVER THERE IS THE SLIGHTEST POSSIBILITY OF CONTACT WITH MOLTEN SULFUR.

SKIN: PROTECT AGAINST HOT LIQUID. USE PROTECTIVE CLOTHING SUCH AS APRONS, HEAT-RESISTANT (INSULATED) GLOVES AND CLOTHING, AND FACIAL PROTECTION (SEE OTHER INFORMATION SECTION).

OTHER HYGIENIC AND WORK PRACTICES: EMERGENCY EYE WASH FOUNTAINS AND SAFETY SHOWERS MUST BE AVAILABLE IN THE VICINITY OF ANY POTENTIAL EXPOSURE TO THIS MATERIAL.

ACCIDENTAL RELEASE MEASURES

PRECAUTIONS IF MATERIAL IS SPILLED OR RELEASED: EVACUATE NON-ESSENTIAL PERSONNEL AND REMOVE ALL IGNITION SOURCES. CAREFULLY CONTAIN SPILL AND STOP SOURCE OF SPILL. DENY ENTRY TO WATER BODIES, IF POSSIBLE. ALLOW MATERIAL TO COOL AND SOLIDIFY. SHOVEL, SWEEP UP, OR VACUUM USING NON-SPARKING TOOLS AND EQUIPMENT. CLEANUP CREWS MUST USE PROPER PROTECTIVE EQUIPMENT (INCLUDING HEAT-RESISTANT CLOTHING WHEN STILL HOT). SPILL MAY NEED TO BE REPORTED TO APPROPRIATE EMERGENCY RESPONSE AGENCIES.

HANDLING AND STORAGE

HANDLING, STORAGE AND DECONTAMINATION PROCEDURES: BECAUSE OF THE POSSIBLE PRESENCE OF HYDROGEN SULFIDE, THE LOADING AND UNLOADING OF SULFUR TANK CARS AND TRUCKS AND ANY PROCESSING MUST BE CARRIED OUT SO THAT ALL SOURCES OF IGNITION ARE ELIMINATED AND PERSONNEL DO NOT INHALE VAPORS. STORE AWAY FROM OXIDIZING MATERIALS AND IGNITION SOURCES. STAY UPWIND DURING ALL HANDLING OPERATIONS INCLUDING CONTAINER GAUGING. SEE NFPA 655 'PREVENTION OF SULFUR FIRE AND EXPLOSIONS' FOR INFORMATION ON PREVENTING OR REDUCING THE HAZARDS OF EXPLOSION AND FIRE FROM PROCESSING AND HANDLING OF SULFUR.

ECOLOGICAL INFORMATION

NOT AVAILABLE

DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHODS: MAXIMIZE RECOVERY FOR REUSE OR RECYCLING. DETERMINE IF STATE OR FEDERAL REGULATIONS WOULD CLASSIFY THIS OR CONTAMINATED MATERIALS AS A HAZARDOUS WASTE. USE ONLY APPROVED TRANSPORTERS, RECYCLERS, TREATMENT, STORAGE OR DISPOSAL FACILITIES. COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS PERTAINING TO WASTE MANAGEMENT.

TRANSPORT INFORMATION

UN PROPER SHIPPING NAME: SULFUR, MOLTEN
UN HAZARD CLASS: 4.1
UN NUMBER: UN2448
UN PACKING GROUP: PG III

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REGULATORY INFORMATION

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA), TITLE III SECTION 311/312 HAZARD CATEGORIES:

IMMEDIATE (ACUTE) HEALTH HAZARD
DELAYED (CHRONIC) HEALTH HAZARD
FIRE HAZARD
REACTIVE

NO CHEMICALS IN THIS PRODUCT EXCEED THE DE MINIMIS REPORTING LEVEL ESTABLISHED BY SARA TITLE III, SECTION 313 AND 40 CFR 372.

TOXIC SUBSTANCES CONTROL ACT (TSCA)
ALL COMPONENTS OF THIS PRODUCT ARE LISTED ON THE TSCA INVENTORY.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA)
THIS PRODUCT CONTAINS THE FOLLOWING CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF CERCLA.

	REPORTABLE. QTY.
	LBS.(KGS.)
HYDROGEN SULFIDE	100 (45.4)

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 - PROPOSITION 65
BASED ON INFORMATION CURRENTLY AVAILABLE, THIS PRODUCT IS NOT KNOWN TO CONTAIN ANY CHEMICALS CURRENTLY LISTED AS CARCINOGENS OR REPRODUCTIVE TOXINS UNDER CALIFORNIA PROPOSITION 65 AT LEVELS WHICH WOULD BE SUBJECT TO THE PROPOSITION.

PROP 65 CHEMICALS MAY RESULT FROM THE USE OF THIS MATERIAL. FOR EXAMPLE, BURNING FUELS PRODUCES COMBUSTION PRODUCTS INCLUDING CARBON MONOXIDE, A PROP 65 REPRODUCTIVE TOXIN. FURTHER EVALUATION FOR PROP 65 COMPLIANCE MAY BE REQUIRED WHEN USING THIS MATERIAL.

OTHER INFORMATION

GENERAL COMMENTS: THE HYDROGEN SULFIDE CONTENT OF THIS MATERIAL (AP 0.01%) IS BASED ON ENGINEERING ESTIMATES, NOT LABORATORY TESTING. HYDROGEN SULFIDE GAS CAN EVOLVE FROM THIS MATERIAL AT ELEVATED TEMPERATURES.

ODOR IS NOT A RELIABLE WARNING OF OVEREXPOSURE.

HYDROGEN SULFIDE VAPORS MAY ACCUMULATE IN TANKS AND TRANSPORT COMPARTMENTS. AVOID BREATHING VAPORS WHEN OPENING HATCHES AND DOME COVERS BY STAYING UPWIND, VENTING SLOWLY AND KEEPING AWAY FROM COMPARTMENT OPENINGS. VERY LOW (5-10 PPM) LIQUID PHASE CONCENTRATIONS OF HYDROGEN SULFIDE MAY PRODUCE HIGH VAPOR PHASE CONCENTRATIONS (1-500 PPM) OF HYDROGEN SULFIDE IN HEAD SPACE OF STORAGE CONTAINERS.

THE INFORMATION AND CONCLUSIONS HEREIN REFLECT NORMAL OPERATING CONDITIONS AND MAY BE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE MIXTURE ITSELF.

ABBREVIATIONS:

EQ = EQUAL	AP = APPROXIMATELY	N/P = NO APPLICABLE INFORMATION FOUND
LT = LESS THAN	UK = UNKNOWN	N/AP = NOT APPLICABLE

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GT = GREATER THAN TR = TRACE

N/DA = NO DATA AVAILABLE

DISCLAIMER OF LIABILITY

THE INFORMATION IN THIS MSDS WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, REGARDING ITS CORRECTNESS.

THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE AND DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

THIS MSDS WAS PREPARED AND IS TO BE USED ONLY FOR THIS PRODUCT. IF THE PRODUCT IS USED AS A COMPONENT IN ANOTHER PRODUCT, THIS MSDS INFORMATION MAY NOT BE APPLICABLE.

MSDS NO.: APPC845 VER. 3
REV. DATE: 09/03/1998
