CARESTREAM HEALTH-SPECIFIC INFORMATION

Product name: 1,6-HEXANEDIOL DIACRYLATE

Product code: 10067159

Eastman Kodak Hazard Ratings: R-2, S-3, F-1, C-2HZT

KAN: 169666

Synonyms: SARTOMER SR238

VENDOR SPECIFIC INFORMATION

SARTOMER COMPANY
MATERIAL SAFETY DATA SHEET

PRODUCT: SR238                         REVISED DATE: 01-17-2005
MSDS ID: D-006065                        REPLACES DATE: 01-03-2000

-----01. GENERAL INFORMATION ------

SARTOMER COMPANY, INC.
OAKLANDS CORPORATE CENTER
502 THOMAS JONES WAY
EXTON, PENNSYLVANIA 19341

EMERGENCY PHONE NUMBERS:  
800/424-9300 (CHEMTREC)  
610/692-8401 (SARTOMER CO., INC.)
PRODUCT INFORMATION:  
610/363-4100

GENERIC NAME
1, 6 HEXANEDIOL DIACRYLATE

DOT PROPER SHIPPING NAME
N/AP
DOT HAZARD CLASS
NOT REGULATED

UN/NA NUMBER
N/AP

-----02. SUMMARY OF HAZARDS ------

WARNING

PHYSICAL HAZARDS: UNSTABLE (REACTIVE) UPON DEPLETION OF INHIBITOR

ACUTE HEALTH EFFECTS: SEVERE SKIN IRRITANT
(SHORT-TERM) SUSPECT SKIN SENSITIZATION HAZARD 
RESPIRATORY TRACT IRRITATION HAZARD 
SLIGHT EYE IRRITANT 
SLIGHT SKIN ABSORPTION HAZARD 
SLIGHT INGESTION HAZARD

CHRONIC HEALTH EFFECTS: SEE SUPPLEMENT SECTION OF MSDS FOR CHRONIC 
(LONG-TERM) HEALTH EFFECTS DATA.
------03. COMPONENTS ------

<table>
<thead>
<tr>
<th>COMPONENT NAME</th>
<th>CAS NUMBER</th>
<th>% COMPOSITION (BY WT.)</th>
</tr>
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<tbody>
<tr>
<td>1,6 HEXANEDIOL DIACRYLATE (HDODA)</td>
<td>13048-33-4</td>
<td>AP 100</td>
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</tbody>
</table>

------04. PHYSICAL AND CHEMICAL DATA ------

BOILING POINT
N/DA
FREEZING POINT
4-8°C/39-46°F
SPECIFIC GRAVITY (H2O=1 AT 39.2°F)
AP 1.02 AT 25°C/77°F
VISCOITY UNITS, TEMP. (BROOKFIELD)
AP 5 TO 15 CPS AT 25°C/77°F
PH
AP 6.8 TO 7.2
DRY POINT
N/DA
VOLATILE CHARACTERISTICS
NEGLIGIBLE
SOLUBILITY IN WATER
NEGLIGIBLE
VAPOR PRESSURE
AP 0.015 MM HG AT 25°C/77°F
LT 0.120 MM HG AT 100°C/212°F
VAPOR SP GR (AIR=1 AT 60 - 90°F)
N/DA
STABILITY STABLE

HAZARDOUS POLYMERIZATION
MAY OCCUR

APPEARANCE AND ODOR
CLEAR LIQUID WITH MUSTY ODOR

CONDITIONS AND MATERIALS TO AVOID
HIGH TEMPERATURES, LOCALIZED HEAT SOURCES (IE, DRUM OR BAND HEATERS),
OXIDIZING CONDITIONS, FREEZING CONDITIONS, DIRECT SUNLIGHT, ULTRAVIOLET
RADIATION, INERT GAS BLANKETING;
STRONG OXIDIZERS, STRONG REDUCERS, FREE RADICAL INITIATORS, INERT GASES,
OXYGEN SCAVENGERS

HAZARDOUS DECOMPOSITION PRODUCTS
ACRID SMOKE-FUMES/CARBON MONOXIDE/CARBON DIOXIDE AND PERHAPS OTHER TOXIC
VAPORS MAY BE RELEASED DURING A FIRE INVOLVING THIS PRODUCT.

------05. OCCUPATIONAL EXPOSURE LIMITS ------

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>SOURCE</th>
<th>DATE</th>
<th>TYPE</th>
<th>VALUE</th>
<th>TIME</th>
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</thead>
<tbody>
<tr>
<td>HDODA</td>
<td>AIHA</td>
<td>1997</td>
<td>WEEL*</td>
<td>1 MG/M3</td>
<td>8 HOURS</td>
</tr>
</tbody>
</table>

* WORKPLACE ENVIRONMENTAL EXPOSURE LEVEL

------06. FIRE AND EXPLOSION ------

FLASH POINT METHOD= (PMCC)
GT 93°C/200°F
AUTOIGNITION TEMP. METHOD= N/DA

FLAMMABLE LIMITS (% VOLUME IN AIR)
LOWER: N/DA  UPPER: N/DA

FIRE AND EXPLOSION HAZARDS
HIGH TEMPERATURES, INHIBITOR DEPLETION, ACCIDENTAL IMPURITIES, OR
EXPOSURE TO RADIATION OR OXIDIZERS MAY CAUSE SPONTANEOUS POLYMERIZING
REACTION GENERATING HEAT/PRESSURE. CLOSED CONTAINERS MAY RUPTURE OR
EXPLODE DURING RUNAWAY POLYMERIZATION.

EXTINGUISHING MEDIA
DRY CHEMICAL
CO2
WATER SPRAY
FOAM
WATER FOG

SPECIAL FIREFIGHTING PROCEDURES
DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. SEE SECTION 4 -
DECOMPOSITION PRODUCTS POSSIBLE. FIGHT FIRE FROM SAFE DISTANCE/PROTECTED
LOCATION. HEAT/IMPURITIES MAY INCREASE TEMPERATURE/BUILD
PRESSURE/RUPTURE CLOSED CONTAINERS, SPREADING FIRE, INCREASING RISK OF
BURNS/INJURIES. WATER MAY BE INEFFECTIVE IN FIREFIGHTING DUE TO LOW
SOLUBILITY. USE WATER SPRAY/FOG FOR COOLING. PRESSURE RELIEF SYSTEM
MAY PLUG WITH SOLIDS, INCREASING RISK OF OVERPRESSURE. NOTIFY
AUTHORITIES IF LIQUID ENTERS SEWER/PUBLIC WATERS.

-----07. HEALTH HAZARDS -----

ROUTES OF EXPOSURE

INHALATION
NO SIGNIFICANT SIGNS OR SYMPTOMS INDICATIVE OF ANY ADVERSE HEALTH HAZARD
ARE EXPECTED TO OCCUR AT STANDARD CONDITIONS DUE TO THE LOW VOLATILITY
OF THIS MATERIAL. HOWEVER, AEROSOLS, OR VAPORS WHICH MAY BE GENERATED
AT ELEVATED PROCESSING TEMPERATURES, MAY CAUSE RESPIRATORY TRACT
IRRITATION. SYMPTOMS OF IRRITATION MAY INCLUDE COUGHING, MUCOUS
PRODUCTION AND SHORTNESS OF BREATH.

EYE CONTACT -- PRIMARY ROUTE
MAY CAUSE MINOR EYE IRRITATION. SYMPTOMS MAY INCLUDE EXCESSIVE TEARING,
BLINKING AND REDNESS.

SKIN ABSORPTION -- PRIMARY ROUTE
EXTENSIVE/PROLONGED OR REPEATED EXPOSURE TO THIS MATERIAL CAN RESULT IN
SIGNIFICANT ABSORPTION.

SKIN IRRITATION -- PRIMARY ROUTE
MAY CAUSE IMMEDIATE SKIN IRRITATION AND BLISTERING.
SYMPTOMS MAY INCLUDE REDNESS OR RASH, SWELLING, AND BLISTERING. PROLONGED
OR REPEATED CONTACT WITH THIS MATERIAL MAY CAUSE A MORE SEVERE SKIN
RESPONSE SUCH AS ULCERS, BURNS AND DEEP SCARRING. REPEATED SKIN CONTACT
WITH LIQUID/AEROSOLS MAY CAUSE SKIN SENSITIZATION (AN ALLERGIC SKIN
REACTION).

INGESTION
THIS MATERIAL MAY BE A SLIGHT HEALTH HAZARD IF INGESTED IN LARGE
QUANTITIES.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
THIS MATERIAL OR ITS EMISSIONS MAY INDUCE AN ALLERGIC OR SENSITIZATION
REACTION AND THEREBY AGGRAVATE SYSTEMIC DISEASE.

-----08. PROTECTIVE EQUIPMENT / CONTROL MEASURES ----- 

RESPIRATORY PROTECTION
IF EXPOSURE EXCEEDS THE OCCUPATIONAL EXPOSURE LIMIT, USE NIOSH/MSHA
APPROVED RESPIRATORY PROTECTION EQUIPMENT AS SPECIFIED IN THE
NIOSH/OSHA 1981 OCCUPATIONAL HEALTH GUIDELINES FOR CHEMICAL HAZARDS.
IF THIS MATERIAL IS HANDLED AT ELEVATED TEMPERATURE OR UNDER MIST FORMING
CONDITIONS, NIOSH/MSHA APPROVED RESPIRATORY PROTECTION EQUIPMENT SHOULD
BE USED.

EYE PROTECTION
EYE PROTECTION SUCH AS CHEMICAL SPLASH GOGGLES AND/OR FACE SHIELD MUST BE
WORN WHEN POSSIBILITY EXISTS FOR EYE CONTACT DUE TO SPLASHING OR SPRAYING
LIQUID, AIRBORNE PARTICLES, OR VAPOUR. CONTACT LENSES SHOULD NOT BE WORN.

SKIN PROTECTION
IMPERVIOUS PROTECTIVE SUIT WITH GLOVES, BOOTS, AND FULL HEAD AND FACE
PROTECTION MUST BE WORN. THE EQUIPMENT MUST BE CLEANED THOROUGHLY AFTER
EACH USE.

ENGINEERING CONTROLS
IF HANDLING RESULTS IN AEROSOL OR VAPOR GENERATION, LOCAL EXHAUST
VENTILATION IS RECOMMENDED.

OTHER HYGIENIC PRACTICES
EMERGENCY EYE WASH FOUNTAINS AND SAFETY SHOWERS SHOULD BE AVAILABLE IN
THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE.

OTHER WORK PRACTICES
USE GOOD PERSONAL HYGIENE PRACTICES. WASH HANDS BEFORE EATING, DRINKING,
SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING/WASH
THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTY OF SOAP AND
WATER.

------09. EMERGENCY AND FIRST AID ------

INHALATION
IF OVERCOME BY EXPOSURE, REMOVE VICTIM TO FRESH AIR IMMEDIATELY. GIVE
OXYGEN OR ARTIFICIAL RESPIRATION AS NEEDED. OBTAIN EMERGENCY MEDICAL
ATTENTION. PROMPT ACTION IS ESSENTIAL.

EYE CONTACT
IN CASE OF EYE CONTACT, IMMEDIATELY RINSE WITH CLEAN WATER FOR 20-30
MINUTES. RETRACT EYELIDS OFTEN. OBTAIN EMERGENCY MEDICAL ATTENTION IF
PAIN, BLINKING, TEARS OR REDNESS PERSIST.

SKIN CONTACT
IMMEDIATELY REMOVE CONTAMINATED CLOTHING. WASH SKIN THOROUGHLY WITH
MILD SOAP/WATER. FLUSH WITH LUKEWARM WATER FOR 15 MINUTES. IF STICKY,
USE WATERLESS CLEANER FIRST. OBTAIN EMERGENCY MEDICAL ATTENTION.

INGESTION
IF LARGE QUANTITY SWALLOWED, GIVE LUKEWARM WATER (PINT) IF VICTIM
COMPLETELY CONSCIOUS/ALERT. DO NOT INDUCE VOMITING/RISK OF DAMAGE TO
LUNGS EXCEEDS POISONING RISK. OBTAIN EMERGENCY MEDICAL ATTENTION.

EMERGENCY MEDICAL TREATMENT PROCEDURES
TREAT BURNS OR ALLERGIC REACTIONS CONVENTIONALLY AFTER DECONTAMINATION.

-------10. SPILL AND DISPOSAL-------

PRECAUTIONS IF MATERIAL IS SPILLED OR RELEASED

SPILLED OR RELEASED MATERIAL MAY POLYMERIZE AND RELEASE HEAT/GASES. EXTINGUISH ALL IGNITION SOURCES AND VENTILATE AREA. WEAR PROTECTIVE EQUIPMENT DURING CLEAN-UP. DIKE AND RECOVER LARGE SPILL. SOAK UP SMALL SPILL WITH INERT SOLIDS (SUCH AS VERMICULITE, CLAY) AND SWEEP/SHOVEL INTO VENTED DISPOSAL CONTAINER. WASH SPILL AREA WITH A STRONG DETERGENT AND WATER SOLUTION; RINSE WITH WATER BUT MINIMIZE WATER USE DURING CLEAN-UP. FOR SPILLS ON WATER, CONTAIN, MINIMIZE DISPERSION AND COLLECT. DISPOSE/REPORT PER REGULATORY REQUIREMENTS.

WASTE DISPOSAL METHODS
NON-CONTAMINATED, PROPERLY INHIBITED PRODUCT IS NOT A RCRA HAZARDOUS WASTE. HOWEVER, CONTAMINATED PRODUCT/SOIL/WATER MAY BE RCRA/OSHA HAZARDOUS WASTE DUE TO POTENTIAL FOR INTERNAL HEAT GENERATION (SEE 40 CFR 261 AND 29 CFR 1910). IT IS THE RESPONSIBILITY OF THE GENERATOR TO DETERMINE AT THE TIME OF DISPOSAL WHETHER THE PRODUCT MEETS THE CRITERIA OF A HAZARDOUS WASTE. COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS. USE REGISTERED TRANSPORTERS. DISPOSAL OPTIONS INCLUDE LANDFILLING SOLIDS AT PERMITTED SITES; FUEL BLENDING OR INCINERATING LIQUIDS. ASSURE EMISSIONS COMPLY WITH APPLICABLE REGULATIONS. DILUTE AQUEOUS WASTE MAY BIODEGRADABLE; AVOID OVERLOADING/POISONING PLANT BIOMASS. ASSURE EFFLUENT COMPLIES WITH APPLICABLE REGULATIONS.

-------11. ADDITIONAL PRECAUTIONS-------

HANDLING AND STORAGE PROCEDURES
WEAR APPROPRIATE PROTECTIVE EQUIPMENT WHEN HANDLING THIS MATERIAL (SEE SECTION 8 OF MSDS). MOST ACRYLIC MONOMERS HAVE LOW VISCOSITIES; HENCE, POURING, MATERIAL TRANSFER AND PROCESSING OF THESE MATERIALS DO NOT NECESSITATE HEATING. VISCOUS MONOMERS MAY REQUIRE HEATING TO FACILITATE HANDLING. TO FACILITATE PRODUCT TRANSFER FROM ORIGINAL CONTAINER, PRODUCT MAY BE HEATED TO 60C/140F FOR NOT MORE THAN 24 HOURS. DO NOT USE LOCALIZED HEAT SOURCES SUCH AS BAND HEATERS TO HEAT/MELT PRODUCT. DO NOT USE STEAM. HOT BOXES OR HOT ROOMS ARE RECOMMENDED FOR HEATING/MELTING MATERIAL. THE HOT BOX OR HOT ROOM SHOULD BE SET AT A MAXIMUM TEMPERATURE OF 60C/140F. DO NOT OVERHEAT—THIS MAY COMPROMISE PRODUCT QUALITY AND/OR RESULT IN AN UNCONTROLLED HAZARDOUS POLYMERIZATION. IF PRODUCT FREEZES, HEAT AS INDICATED ABOVE AND MIX GENTLY TO REDISTRIBUTE THE INHIBITOR. PRODUCT SHOULD BE CONSUMED IN ITS ENTIRETY AFTER HEATING/MELTING—AVOID MULTIPLE "RE-HEATS" WHICH MAY AFFECT PRODUCT QUALITY OR RESULT IN PRODUCT DEGRADATION. PRODUCT IS PACKAGED WITH INHIBITOR(S). UNLESS INHIBITED, PRODUCT CAN POLYMERIZE, RAISING TEMPERATURE AND PRESSURE POSSIBLY RUPTURING CONTAINER. CHECK INHIBITOR CONTENT PERIODICALLY, ADDING TO BULK MATERIAL IF NEEDED. IN ADDITION, THE PRODUCT'S INHIBITOR(S) REQUIRE THE PRESENCE OF DISSOLVED OXYGEN. MAINTAIN, AT A MINIMUM, THE ORIGINAL HEADSPACE IN THE PRODUCT CONTAINER AND DO NOT BLANKET OR MIX WITH OXYGEN-FREE GAS AS IT RENDERS INHIBITOR INEFFECTIVE. ENSURE AIR SPACE (OXYGEN) IS PRESENT DURING PRODUCT HEATING/MELTING.

STORE PRODUCT INDOORS AT TEMPERATURES GREATER THAN PRODUCT'S FREEZING POINT (OR GREATER THAN 0C/32F IF NO FREEZING POINT AVAILABLE) AND BELOW 38C/100F. AVOID PROLONGED (LONGER THAN SHELF-LIFE) STORAGE TEMPERATURES ABOVE 38C/100F. STORE IN TIGHTLY CLOSED CONTAINERS IN A PROPERLY VENTED STORAGE AREA AWAY FROM: HEAT, SPARKS, OPEN FLAME, STRONG OXIDIZERS, RADIATION, AND OTHER INITIATORS. PREVENT CONTAMINATION BY FOREIGN MATERIALS. PREVENT MOISTURE CONTACT. USE ONLY NON-SPARKING
TOOLS AND LIMIT STORAGE TIME. UNLESS SPECIFIED ELSEWHERE, SHELF-LIFE IS 6 MONTHS FROM RECEIPT. MAINTAIN BULK STORAGE TEMPERATURES BETWEEN 60-80F.

DECONTAMINATION PROCEDURES
FOLLOW STANDARD PLANT PROCEDURES OR SUPERVISOR'S INSTRUCTIONS FOR DECONTAMINATION OPERATIONS.

-----12. LABEL INFORMATION ----- USE STATEMENT FOR INDUSTRIAL USE ONLY SIGNAL WORD WARNING PHYSICAL HAZARDS UNSTABLE (REACTIVE) UPON LOSS OF INHIBITOR HEALTH HAZARDS CAUSES SEVERE SKIN IRRITATION MAY CAUSE ALLERGIC SKIN REACTION PRECAUTIONARY MEASURES HAZARDOUS POLYMERIZATION MAY OCCUR UPON DEPLETION OF INHIBITOR. DO NOT HANDLE NEAR HEAT, SPARKS, OR OPEN FLAME. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. AVOID BREATHING VAPORS/MISTS. KEEP CONTAINER CLOSED WHEN NOT IN USE. WASH THOROUGHLY AFTER HANDLING. USE ONLY WITH ADEQUATE VENTILATION/PERSOAL PROTECTION. BEFORE USING PRODUCT, READ MATERIAL SAFETY DATA SHEET (MSDS).

-----13. SUPPLEMENT ----- NPCA HMIS RATING HEALTH 2 FLAMMABILITY 1 REACTIVITY 2 PERSONAL PROTECTION SEE SECTION 8 OF MSDS.

CHRONIC HEALTH EFFECTS INFORMATION: RESULTS FROM A MOUSE LYMPHOMA TEST WERE POSITIVE, INDICATING THAT THIS MATERIAL MAY HAVE MUTAGENIC POTENTIAL; AN AMES TEST FOR MUTAGENICITY PRODUCED EQUIVOCAL RESULTS. HOWEVER, AN 80 WEEK CARCINOGENICITY STUDY IN MICE SHOWED NO INCREASED INCIDENCE OF SKIN OR VISCERAL TUMORS. IN GENERAL, ACRYLATES ARE NOT ACTIVE IN THE AMES MUTAGENESIS ASSAY, BUT ARE POSITIVE IN THE MOUSE LYMPHOMA ASSAY. THE SPECIFICITY OF THE MOUSE GENOTOXIC RESPONSE FROM ACRYLATES IS SUBJECT TO DISCUSSION AND MAY BE AN ABERRANT RESPONSE OF THE TEST SYSTEM.

THIS MATERIAL WAS NOT FETOTOXIC OR TERATOGENIC WHEN ADMINISTERED ORALLY TO MICE AT A MATERNALLY TOXIC DOSE.

REGULATORY INFORMATION TSCA STATUS TSCA STATUS: ALL COMPONENTS OF THIS PRODUCT ARE LISTED, OR EXCLUDED FROM LISTING, ON THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY TOXIC SUBSTANCES CONTROL ACT (TSCA) INVENTORY.

CALIFORNIA PROPOSITION 65 CALIFORNIA PROPOSITION 65 INFORMATION: THIS PRODUCT CONTAINS, OR MAY CONTAIN, TRACE QUANTITIES OF A SUBSTANCE(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND/OR REPRODUCTIVE TOXICITY.

INTERNATIONAL INVENTORY STATUS AUSTRALIA (AICS) : INCLUDED ON INVENTORY
CANADA (DSL) : INCLUDED ON INVENTORY
CHINA : INCLUDED ON INVENTORY
EUROPE (EINECS) : INCLUDED ON INVENTORY
JAPAN (ENCS) : INCLUDED ON INVENTORY
KOREA (ECL) : INCLUDED ON INVENTORY
PHILIPPINES (PICCS) : INCLUDED ON INVENTORY

THIS MATERIAL CONTAINS AN INHIBITOR (HQ, MEHQ, ETC.) AT <1%. THE TYPE AND AMOUNT MEET PRODUCT SPECIFICATIONS. CONTACT A COMPANY REPRESENTATIVE FOR EXACT CONCENTRATIONS AND DETAILS ON INHIBITOR LEVEL MAINTENANCE.

*NOTE - QUALIFIERS AND CODES USED IN THIS MSDS
EQ = EQUAL; AP = APPROXIMATELY; LT = LESS THAN; GT = GREATER THAN; TR = TRACE; UK = UNKNOWN; N/AP = NOT APPLICABLE; N/P = NO APPLICABLE INFORMATION FOUND; N/DA = NO DATA AVAILABLE

-----14. DISCLAIMERS-----

SOME OF THE INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE PRODUCT ITSELF. 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. THIS MSDS HAS BEEN PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

DATE PRINTED: 01-17-2005