

***CYCLOHEXANOL**

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MATERIAL SAFETY DATA SHEET

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SUBSTANCE IDENTIFICATION

SUBSTANCE: ***CYCLOHEXANOL**

CAS-NUMBER 108-93-0

TRADE NAMES/SYNONYMS:

HYDRALIN; HEXAHYDROPHENOL; CYCLOHEXYL ALCOHOL; ADRONAL; HEXALIN; NAXOL; HYDROPHENOL; ANOL; HYDROXYCYCLOHEXANE; C-557; C-558; C-2108;

CHEMICAL FAMILY:
HYDROXYL, ALICYCLIC

MOLECULAR FORMULA: C₆-H₁₂-O

MOLECULAR WEIGHT: 100.16

CERCLA RATINGS (SCALE 0-3): HEALTH=2 FIRE=2 REACTIVITY=0 PERSISTENCE=0
NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=2 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: CYCLOHEXANOL

PERCENT: 100

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:

CYCLOHEXANOL:

50 PPM (200 MG/M3) OSHA TWA (SKIN)

50 PPM (200 MG/M3) ACGIH TWA (SKIN)

PHYSICAL DATA

DESCRIPTION: COLORLESS, OILY, HYGROSCOPIC LIQUID WITH ODOR OF CAMPHOR.

BOILING POINT: 322 F (161 C) MELTING POINT: 77 F (25 C)

SPECIFIC GRAVITY: 0.96 VAPOR PRESSURE: 1.0 MMHG @ 21 C

EVAPORATION RATE: (TOLUENE= 100) 8 SOLUBILITY IN WATER: SOLUBLE

VAPOR DENSITY: 3.5

SOLVENT SOLUBILITY: ALCOHOL, ACETONE, ETHER, BENZENE, PETROLEUM SOLV.

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:

MODERATE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK.

VAPOR-AIR MIXTURES ARE EXPLOSIVE ABOVE FLASH POINT.

FLASH POINT: 154 F (68 C) (CC) AUTOIGNITION TEMP.: 572 F (300 C)

FLAMMABILITY CLASS(OSHA): IIIA

FIREFIGHTING MEDIA:

DRY CHEMICAL, CARBON DIOXIDE, HALON, WATER SPRAY OR STANDARD FOAM
(1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR STANDARD FOAM
(1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FIREFIGHTING:

MOVE CONTAINER FROM FIRE AREA IF POSSIBLE. COOL FIRE-EXPOSED CONTAINERS WITH WATER FROM SIDE UNTIL WELL AFTER FIRE IS OUT. STAY AWAY FROM STORAGE TANK ENDS. FOR MASSIVE FIRE IN STORAGE AREA, USE UNMANNED HOSE HOLDER OR MONITOR NOZZLES. ELSE WITHDRAW FROM AREA AND LET FIRE BURN. WITHDRAW IMMEDIATELY IN CASE OF RISING SOUND FROM VENTING SAFETY DEVICE OR ANY DISCOLORATION OF STORAGE TANK DUE TO FIRE (1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4, GUIDE PAGE 27).

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EXTINGUISH ONLY IF FLOW CAN BE STOPPED, USE FLOODING AMOUNTS OF WATER AS A
FOG, SOLID STREAMS MAY BE INEFFECTIVE. COOL CONTAINERS WITH FLOODING
AMOUNTS OF WATER, APPLY FROM AS FAR A DISTANCE AS POSSIBLE. AVOID BREATHING
VAPORS, KEEP UPWIND.

ALCOHOL FOAM (NFPA FIRE PROTECTION GUIDE ON HAZARDOUS MATERIAL, EIGHTH
EDITION).

TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49CFR172.101;
COMBUSTIBLE LIQUID

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49CFR172.101 AND 172.402;
NONE

DEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: NONE
EXCEPTIONS: 49CFR173.118A

TOXICITY

CYCLOHEXANOL:
100 PPM EYE-HUMAN IRRITATION, 14600 UG/24 HOURS OPEN SKIN-RABBIT MILD
IRRITATION, 2 MG EYE-RABBIT SEVERE IRRITATION, 75 PPM INHALATION-HUMAN TCLO;
2060 MG/KG ORAL-RAT LD50, 2480 MG/KG SUBCUTANEOUS-MOUSE LD50, 272 MG/KG
INTRAVENOUS-MOUSE LD50, 1000 MG/KG INTRAMUSCULAR-MOUSE LD50;
2200 MG/KG ORAL-RABBIT LDLO, 12 GM/KG SKIN-RABBIT LDLO, 1420 MG/KG
INTRAPERITONEAL-RABBIT LDLO, MUTAGENIC DATA (RTECS); REPRODUCTIVE EFFECTS DATA
(RTECS); CARCINOGEN STATUS: NONE.

CYCLOHEXANOL IS AN EYE, SKIN AND MUCOUS MEMBRANE IRRITANT AND CENTRAL
NERVOUS SYSTEM DEPRESSANT. POISONING MAY CAUSE LIVER, KIDNEY AND BRAIN INJURY.
PERSONS WITH PRE-EXISTING SKIN, LIVER, KIDNEY OR RESPIRATORY DISORDERS MAY BE
AT AN INCREASED RISK FROM EXPOSURE.

HEALTH EFFECTS AND FIRST AID

INHALATION:
CYCLOHEXANOL:
IRRITANT/NARCOTIC.

3500 MG/KG IMMEDIATELY DANGEROUS TO LIFE OR HEALTH.

ACUTE EXPOSURE- MAY CAUSE IRRITATION OF THE RESPIRATORY TRACT. HIGH
CONCENTRATIONS PRODUCE CENTRAL NERVOUS SYSTEM DEPRESSION WITH WEAKNESS,
DIZZINESS, DROWSINESS, HEADACHE, NAUSEA AND VOMITING. 100 PPM CAUSED
HEADACHE AND EYE IRRITATION IN HUMAN VOLUNTEERS EXPOSED FOR FIVE MINUTES.

CHRONIC EXPOSURE- IN A GROUP OF VOLUNTEERS, WHO WERE EXPOSED DAILY TO LESS
THAN THE PERMITTED CONCENTRATIONS, 114 PERSONS SHOWED NONSPECIFIC
DISTURBANCES OF THE AUTONOMIC NERVOUS SYSTEM DURING A 2 YEAR PERIOD,
WHILE ONLY 8 OUT OF 100 PERSONS IN A NON-EXPOSED CONTROL GROUP HAD
SIMILAR DISTURBANCES. HIGH CONCENTRATIONS FOR 6 HOURS/DAY, 5 DAYS/WEEK
FOR 5-11 WEEKS RESULTED IN LACRIMATION, SALIVATION, INCOORDINATION,
NARCOSIS, MILD CONVULSIONS, AND DEATH IN HALF OF THE RABBITS EXPOSED.
TOXIC DEGENERATIVE CHANGES WERE FOUND IN THE BRAIN, HEART, LIVER AND
KIDNEYS.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING
HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. MAINTAIN AIRWAY AND BLOOD
PRESSURE AND ADMINISTER OXYGEN IF AVAILABLE. KEEP AFFECTED PERSON WARM AND
AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. ADMINISTRATION OF OXYGEN
SHOULD BE PERFORMED BY QUALIFIED PERSONNEL. GET MEDICAL ATTENTION
IMMEDIATELY.

SKIN CONTACT:
CYCLOHEXANOL:
IRRITANT/NARCOTIC.

ACUTE EXPOSURE- MAY CAUSE IRRITATION AND DEFATTING OF THE SKIN. HIGH
CONCENTRATIONS ABSORBED THROUGH THE SKIN MAY CAUSE CENTRAL NERVOUS SYSTEM
DEPRESSION WITH HEADACHE, WEAKNESS, DIZZINESS, DROWSINESS, NAUSEA AND
VOMITING. HIGH DOSES CAUSED DEATH IN LABORATORY ANIMALS.

CHRONIC EXPOSURE- REPEATED AND PROLONGED CONTACT MAY CAUSE DERMATITIS. IF
HIGH CONCENTRATIONS ARE ABSORBED, LIVER AND KIDNEY DAMAGE MAY OCCUR.
THE APPLICATION OF 10 ML TO THE SKIN OF A RABBIT FOR ONE HOUR/DAY FOR TEN
DAYS INDUCED NARCOSIS, HYPOTHERMIA, TREMOR, AND ATHETOID MOVEMENTS.
NECROSIS, EXUDATIVE ULCERATION, AND THICKENING OF THE SKIN OCCURRED IN THE
AREA OF CONTACT.

FIRST AID- REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED
AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO
EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL
ATTENTION IMMEDIATELY.

EYE CONTACT:
CYCLOHEXANOL:
IRRITANT.

ACUTE EXPOSURE- MAY CAUSE IRRITATION WITH REDNESS AND PAIN. WHEN INSTILLED
INTO THE EYE OF THE RABBIT, MODERATELY SEVERE IRRITATION AND CORNEAL
INJURY, WHICH WAS REVERSIBLE, OCCURRED.

CHRONIC EXPOSURE- REPEATED AND PROLONGED CONTACT MAY CAUSE CONJUNCTIVITIS.

FIRST AID- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE,
OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL
REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
CYCLOHEXANOL:

CYCLOHEXANOL
NARCOTIC.

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ACUTE EXPOSURE- MAY CAUSE IRRITATION OF THE MUCOUS MEMBRANES, COUGHING, ABDOMINAL PAIN, DIARRHEA AND CENTRAL NERVOUS SYSTEM DEPRESSION WITH HEADACHE, WEAKNESS, DIZZINESS, DROWSINESS, NAUSEA AND VOMITING.
CHRONIC EXPOSURE- REPEATED EXPOSURE MAY CAUSE LIVER AND KIDNEY DAMAGE.

FIRST AID- REMOVE BY GASTRIC LAVAGE OR EMESIS. MAINTAIN BLOOD PRESSURE AND AIRWAY. GIVE OXYGEN IF RESPIRATION IS DEPRESSED. DO NOT PERFORM GASTRIC LAVAGE OR EMESIS IF VICTIM IS UNCONSCIOUS. GET MEDICAL ATTENTION IMMEDIATELY. (DREISBACH, HANDBOOK OF POISONING, 11TH ED.) ADMINISTRATION OF GASTRIC LAVAGE OR OXYGEN SHOULD BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.

ANTIDOTE:

NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

REACTIVITY

REACTIVITY:

STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:

CYCLOHEXANOL:

STRONG OXIDIZERS: MAY REACT VIGOROUSLY OR VIOLENTLY.
NITRIC ACID: MAY REACT VIOLENTLY OR EXPLOSIVELY.
CHROMIC ANHYDRIDE: MAY IGNITE.

DECOMPOSITION:

THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE TOXIC OXIDES OF CARBON.

POLYMERIZATION:

HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

CONDITIONS TO AVOID

MAY BE IGNITED BY HEAT, SPARKS OR FLAMES. CONTAINER MAY EXPLODE IN HEAT OF FIRE. VAPOR EXPLOSION HAZARD INDOORS, OUTDOORS OR IN SEWERS. RUN-OFF TO SEWER MAY CREATE FIRE OR EXPLOSION HAZARD.

SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:

SHUT OFF IGNITION SOURCES. STOP LEAK IF YOU CAN DO IT WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. FOR SMALL SPILLS, TAKE UP WITH SAND OR OTHER ABSORBENT MATERIAL AND PLACE INTO CONTAINERS FOR LATER DISPOSAL. FOR LARGER SPILLS, DIKE FAR AHEAD OF SPILL FOR LATER DISPOSAL. NO SMOKING, FLAMES OR FLARES IN HAZARD AREA! KEEP UNNECESSARY PEOPLE AWAY; ISOLATE HAZARD AREA AND DENY ENTRY.

PROTECTIVE EQUIPMENT

VENTILATION:

PROVIDE LOCAL EXHAUST VENTILATION SYSTEM TO MEET PUBLISHED EXPOSURE LIMITS.

RESPIRATOR:

THE FOLLOWING RESPIRATORS AND MAXIMUM USE CONCENTRATIONS ARE RECOMMENDATIONS BY THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, NIOSH POCKET GUIDE TO CHEMICAL HAZARDS OR NIOSH CRITERIA DOCUMENTS, OR DEPARTMENT OF LABOR, 29CFR1910 SUBPART Z.

THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORK PLACE AND BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION.

FOR CYCLOHEXANOL:

500 PPM- ANY CHEMICAL CARTRIDGE RESPIRATOR WITH AN ORGANIC VAPOR CARTRIDGE(S).
ANY SUPPLIED-AIR RESPIRATOR.
ANY SELF-CONTAINED BREATHING APPARATUS.

1000 PPM- ANY POWERED AIR-PURIFYING RESPIRATOR WITH AN ORGANIC VAPOR CARTRIDGE(S).
ANY CHEMICAL CARTRIDGE RESPIRATOR WITH A FULL FACEPIECE AND ORGANIC VAPOR CARTRIDGE(S)

1250 PPM- ANY SUPPLIED-AIR RESPIRATOR OPERATED IN A CONTINUOUS FLOW MODE.

2500 PPM- ANY AIR-PURIFYING FULL FACEPIECE RESPIRATOR (GAS MASK) WITH A CHIN-STYLE OR FRONT OR BACK-MOUNTED ORGANIC VAPOR CANISTER.
ANY SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE.
ANY SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE.

3500 PPM- ANY SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE AND OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

ESCAPE- ANY AIR-PURIFYING FULL FACEPIECE RESPIRATOR (GAS MASK) WITH A CHIN-STYLE OR FRONT OR BACK-MOUNTED ORGANIC VAPOR CANISTER.
ANY APPROPRIATE ESCAPE-TYPE SELF-CONTAINED BREATHING APPARATUS.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE.

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SUPPLIED-AIR RESPIRATOR WITH FULL FACEPIECE AND OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

CLOTHING:

EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE (IMPERVIOUS) CLOTHING AND EQUIPMENT TO PREVENT REPEATED OR PROLONGED SKIN CONTACT WITH THIS SUBSTANCE.

GLOVES:

EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

EYE PROTECTION:

EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES TO PREVENT EYE CONTACT WITH THIS SUBSTANCE. CONTACT LENSES SHOULD NOT BE WORN.

AUTHORIZED - FISHER SCIENTIFIC GROUP, INC.

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-ADDITIONAL INFORMATION-

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