J.T. BAKER INC., 222 RED SCHOOL LANE, PHILLIPSBURG, NJ 08865

MATERIAL SAFETY DATA SHEET
24-HOUR EMERGENCY TELEPHONE -- (201) 859-2151
CHEMTREC # (800) 424-9300 -- NATIONAL RESPONSE CENTER # (800) 424-8802

C7073 -03
EFFECTIVE: 05/01/89
ISSUED: 05/16/89

J.T. BAKER INC., 222 RED SCHOOL LANE, PHILLIPSBURG, NJ 08865

=========================================
SECTION I - PRODUCT IDENTIFICATION
=========================================

PRODUCT NAME: CYCLOHEXENE
COMMON SYNONYMS: BENZENE TETRAHYDRIDE; 1,2,3,4-TETRAHYDROBENZENE
CHEMICAL FAMILY: ALIPHATIC HYDROCARBONS
FORMULA: CH=CH(CH2)3CH2
FORMULA WT.: 82.15
CAS NO.: 110-83-8
NIOSH/TECS NO.: GW2500000
PRODUCT USE: LABORATORY REAGENT
PRODUCT CODES: 6045

=========================================
PRECAUTIONARY LABELING
=========================================

BAKER SAF-T-DATA* SYSTEM

HEALTH - 1 SLIGHT
FLAMMABILITY - 3 SEVERE (FLAMMABLE)
REACTIVITY - 2 MODERATE
CONTACT - 3 SEVERE (CORROSIVE)

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B
EXTINGUISHER

U.S. PRECAUTIONARY LABELING

DANGER
EXTREMELY FLAMMABLE. CAUSES BURNS. HARMFUL IF SWALLOWED, INHALED, OR ABSORBED
THROUGH SKIN.
KEEP AWAY FROM HEAT, SPARKS, FLAME. DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID BREATHING VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE
VENTILATION. WASH THOROUGHLY AFTER HANDLING. IN CASE OF FIRE, USE ALCOHOL
FOAM, DRY CHEMICAL, CARBON DIOXIDE - WATER MAY BE INEFFECTIVE. FLUSH SPILL
AREA WITH WATER SPRAY.

CONTINUED ON PAGE: 2
**PRECAUTIONARY LABELING (CONTINUED)**

**INTERNATIONAL LABELING**

AVOID CONTACT WITH EYES. AFTER CONTACT WITH SKIN, WASH IMMEDIATELY WITH PLENTY OF WATER. KEEP CONTAINER TIGHTLY CLOSED.

SAF-T-DATA* STORAGE COLOR CODE: RED (FLAMMABLE)

**SECTION II - COMPONENTS**

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>CAS NO.</th>
<th>WEIGHT %</th>
<th>OSHA/PEL</th>
<th>ACGIH/TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYCLOHEXENE</td>
<td>110-83-8</td>
<td>90-100</td>
<td>300 PPM</td>
<td>300 PPM</td>
</tr>
<tr>
<td>BUTYLATED HYDROXYTOLUENE (BHT)</td>
<td>128-37-0</td>
<td>0.0050</td>
<td>N/E</td>
<td>10 MG/M3</td>
</tr>
</tbody>
</table>

**SECTION III - PHYSICAL DATA**

BOILING POINT: 83 C (181 F)
(AT 760 MM HG)

MELTING POINT: -104 C (-155 F)
(AT 760 MM HG)

SPECIFIC GRAVITY: 0.81
(H2O=1)

SOLUBILITY(H2O): NEGLIGIBLE (<0.1%)

PH: N/A

ODOR THRESHOLD (P.P.M.): N/A

COEFFICIENT WATER/OIL DISTRIBUTION: N/A

APPEARANCE & ODOR: COLORLESS LIQUID. SWEET ODOR.

CONTINUED ON PAGE: 3
SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP): -12 C (10 F)   NFPA 704 M RATING: 1-3-0

AUTOIGNITION TEMPERATURE: 243 C (471 F)

FLAMMABLE LIMITS:   UPPER - 5.0 %   LOWER - 1.0 %

FIRE EXTINGUISHING MEDIA
USE ALCOHOL FOAM, DRY CHEMICAL OR CARBON DIOXIDE. (WATER MAY BE INEFFECTIVE.)

SPECIAL FIRE-FIGHTING PROCEDURES
FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

UNUSUAL FIRE & EXPLOSION HAZARDS
VAPORS MAY FLOW ALONG SURFACES TO DISTANT IGNITION SOURCES AND FLASH BACK. CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE. CONTACT WITH STRONG OXIDIZERS MAY CAUSE FIRE.

TOXIC GASES PRODUCED
NONE IDENTIFIED

EXPLOSION DATA-SENSITIVITY TO MECHANICAL IMPACT
NONE IDENTIFIED.

EXPLOSION DATA-SENSITIVITY TO STATIC DISCHARGE
NONE IDENTIFIED.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE (TLV/TWA): 1015 MG/M3 (300 PPM)
SHORT-TERM EXPOSURE LIMIT (STEL): NOT ESTABLISHED
PERMISSIBLE EXPOSURE LIMIT (PEL): 1015 MG/M3 (300 PPM)
TOXICITY OF COMPONENTS
NO INFORMATION IS AVAILABLE

CONTINUED ON PAGE: 4
Carcinogenicity: NTP: NO  IARC: NO  Z List: NO  OSHA REG: NO

Reproductive effects: None identified.

Effects of overexposure:

Inhalation: Nausea, vomiting, headache, unconsciousness, may cause narcosis

Skin contact: Irritation

Eye contact: Irritation

Skin absorption: None identified

Ingestion: None identified

Chronic effects: None identified

Target organs:
Skin, eyes, respiratory system

Medical conditions generally aggravated by exposure:
None identified

Primary routes of entry:
Inhalation, ingestion, eye contact, skin contact

Emergency and first aid procedures:

Ingestion: Call a physician.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before re-use.
SECTION V - HEALTH HAZARD DATA (CONTINUED)

EYE CONTACT: IN CASE OF EYE CONTACT, IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES.

SARA/TITLE III HAZARD CATEGORIES AND LISTS

ACUTE: YES CHRONIC: YES FLAMMABILITY: YES PRESSURE: NO REACTIVITY: NO

EXTREMELY HAZARDOUS SUBSTANCE: NO CERCLA HAZARDOUS SUBSTANCE: NO TOXIC CHEMICALS: NO TSCA INVENTORY: YES

SECTION VI - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: HEAT, FLAME, OTHER SOURCES OF IGNITION INCOMPATIBILITIES: STRONG OXIDIZING AGENTS DECOMPOSITION PRODUCTS: NONE IDENTIFIED

SECTION VII - SPILL & DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. SHUT OFFIGNITION SOURCES; NO FLARES, SMOKING OR FLAMES IN AREA. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE INTO CONTAINER FOR LATER DISPOSAL. FLUSH AREA WITH WATER.

J. T. BAKER SOLUSORB(R) SOLVENT ADSORBENT IS RECOMMENDED FOR SPIFFS OF THIS PRODUCT.

DISPOSAL PROCEDURE
DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

CONTINUED ON PAGE: 6
CYCLOHEXENE

SECTION VII - SPILL & DISPOSAL PROCEDURES (CONTINUED)

EPA HAZARDOUS WASTE NUMBER: D001 (IGNITABLE WASTE)

SECTION VIII - INDUSTRIAL PROTECTIVE EQUIPMENT

VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS.

RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS UP TO 1000 PPM, A CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE IS RECOMMENDED. ABOVE THIS LEVEL, A SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED.

EYE/SKIN PROTECTION: SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE SUIT, RUBBER GLOVES ARE RECOMMENDED.

SECTION IX - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA* STORAGE COLOR CODE: RED (FLAMMABLE)

STORAGE REQUIREMENTS
KEEP CONTAINER TIGHTLY CLOSED. STORE IN A COOL, DRY, WELL-VENTILATED, FLAMMABLE LIQUID STORAGE AREA.

SPECIAL PRECAUTIONS
BOND AND GROUND CONTAINERS WHEN TRANSFERRING LIQUID.

SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME: FLAMMABLE LIQUID, N.O.S. (CYCLOHEXENE)
HAZARD CLASS: FLAMMABLE LIQUID
UN/NA: UN1993
LABELS: FLAMMABLE LIQUID
REGULATORY REFERENCES: 49CFR 172.101; 173.119

CONTINUED ON PAGE: 7
INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME: CYCLOHEXENE
HAZARD CLASS: 3.2
UN: UN2256 MARINE POLLUTANTS: NO
LABELS: FLAMMABLE LIQUID
REGULATORY REFERENCES: 49CFR 172.102; PART 176; IMO

PACKAGING GROUP: II

AIR (I.C.A.O.)

PROPER SHIPPING NAME: CYCLOHEXENE
HAZARD CLASS: 3.2
UN: UN2256
LABELS: FLAMMABLE LIQUID
REGULATORY REFERENCES: 49CFR 172.101; 173.6; PART 175; ICAO/IATA

U.S. CUSTOMS HARMONIZATION NUMBER: 29021900004

N/A = NOT APPLICABLE OR NOT AVAILABLE
N/E = NOT ESTABLISHED

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET MEETS THE REQUIREMENTS OF THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ACT AND REGULATIONS PROMULGATED THEREUNDER (29 CFR 1910.1200 ET. SEQ.) AND THE CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM. THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PERSON TRAINED IN, OR SUPERVISED BY A PERSON TRAINED IN, CHEMICAL HANDLING. THE USER IS RESPONSIBLE FOR DETERMINING THE PRECAUTIONS AND DANGERS OF THIS CHEMICAL FOR HIS OR HER PARTICULAR APPLICATION. DEPENDING ON USAGE, PROTECTIVE CLOTHING INCLUDING EYE AND FACE GUARDS AND RESPIRATORS MUST BE USED TO AVOID CONTACT WITH MATERIAL OR BREATHING CHEMICAL VAPORS/FUMES.

EXPOSURE TO THIS PRODUCT MAY HAVE SERIOUS ADVERSE HEALTH EFFECTS. THIS CHEMICAL MAY INTERACT WITH OTHER SUBSTANCES. SINCE THE POTENTIAL USES ARE SO VARIED, BAKER CANNOT WARN OF ALL OF THE POTENTIAL DANGERS OF USE OR INTERACTION WITH OTHER CHEMICALS OR MATERIALS. BAKER WARRANTS THAT THE CHEMICAL MEETS THE SPECIFICATIONS SET FORTH ON THE LABEL. BAKER DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR PURPOSE. THE USER SHOULD RECOGNIZE THAT THIS PRODUCT CAN CAUSE SEVERE INJURY AND CONTINUED ON PAGE: 8
EVEN DEATH, ESPECIALLY IF IMPROPERLY HANDLED OR THE KNOWN DANGERS OF USE ARE NOT HEEDED. READ ALL PRECAUTIONARY INFORMATION. AS NEW DOCUMENTED GENERAL SAFETY INFORMATION BECOMES AVAILABLE, BAKER WILL PERIODICALLY REVISE THIS MATERIAL SAFETY DATA SHEET. IF YOU HAVE ANY QUESTIONS, PLEASE CALL CUSTOMER SERVICE (1-800-JTBAKER) FOR ASSISTANCE.

COPYRIGHT 1989 J.T. BAKER INC.
* TRADEMARKS OF J.T. BAKER INC.

APPROVED BY QUALITY ASSURANCE DEPARTMENT.

-- LAST PAGE --