AAPER ALCOHOL & CHEMICAL CO -- SPECIALLY DENATURED ALCOHOL (SDA) 23A, 190 PROOF -- 6810-00N012132

Product Identification

Product ID: SPECIALLY DENATURED ALCOHOL (SDA) 23A, 190 PROOF
MSDS Date: 12/01/1993
FSC: 6810
NIIN: 00N012132
MSDS Number: CCXWS

Responsible Party

Company Name: AAPER ALCOHOL & CHEMICAL CO
Address: 1101 ISAAC SHELBY DR
Box: 339
City: SHELBYVILLE
State: KY
ZIP: 40066-0339
Country: US
Info Phone Num: 502-633-0650
Emergency Phone Num: 800-424-9300 (CHEMTREC)
CAGE: 61305

Contractor Identification

Company Name: AAPER ALCOHOL AND CHEMICAL CO
Address: 1101 ISAAC SHELBY DR
Box: 339
City: SHELBYVILLE
State: KY
ZIP: 40066-0339
Country: US
Phone: 502-633-0650
CAGE: 61305

Composition/Information on Ingredients

Ingred Name: ING 10: MATERIALS REACTING W/AIR OR MOISTURE TO LIBERATE HEAT, IGNITION SOURCES & EXPLOSIVES. CONSULT LOCAL FIRE (ING 12)
RTECS #: 9999999ZZ

Ingred Name: ING 11: CODES FOR ADDITIONAL STORAGE INFORMATION.
RTECS #: 9999999ZZ

Ingred Name: OTHER PRECS: OR BOTTLES OUT OF SUN & AWAY FROM HEAT. REMOVE CLOSURE CAREFULLY; INTERNAL PRESSURE MAY BE PRESENT. (ING 14)
RTECS #: 9999999ZZ

Ingred Name: ING 13: KEEP CLOSURE ON TO PREVENT LEAKAGE. CONTAINER HAZARDOUS WHEN EMPTY. SINCE EMLTED CONTAINERS RETAIN (ING 15)
RTECS #: 9999999ZZ

Ingred Name: ING 14: PROD (VAPOR & LIQUID), ALL PRECAUTIONS DESCRIBED IN MSDS MUST BE OBSERVED. CAUTION: FOR MANUFACTURING, (ING 16)
RTECS #: 9999999ZZ

Ingred Name: ING 15: PROCESSING, REPACKAGING OR INDUSTRIAL USE. NOT FOR HOUSEHOLD USE.
RTECS #: 9999999ZZ
INGREDIENT: OTHER PROT EQUIP: DURATION OF THE ANTICIPATED EXPOSURE IF THERE IS POTENTIAL FOR PROLONGED OR REPEATED SKIN CONTACT.
RTECS #: 999999992Z

INGREDIENT: ETHYL ALCOHOL
CAS: 64-17-5
RTECS #: KQ6300000
Fraction by Wt: 85.73%
OSHA PEL: 1000 PPM
ACGIH TLV: 1000 PPM

INGREDIENT: ACETONE (SARA 313) (CERCLA)
CAS: 67-64-1
RTECS #: AL3150000
Fraction by Wt: 7.24%
OSHA PEL: 1000 PPM
ACGIH TLV: 750 PPM; 1000 STEL
EPA Rpt Qty: 5000 LBS
DOT Rpt Qty: 5000 LBS

INGREDIENT: WATER
CAS: 7732-18-5
RTECS #: ZC0110000
Fraction by Wt: 7.03%
OSHA PEL: N/K
ACGIH TLV: N/K

INGREDIENT: SUPDAT: EYES: EYES SHOULD BE FLUSHED FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION IMMEDIATELY.
RTECS #: 999999992Z

INGREDIENT: SPILL PROC: NECESSARY, COLLECT USING ABSORBENT MEDIA. IN THE EVENT OF AN UNCONTROLLED RELEASE OF THIS MATERIAL, (ING 6)
RTECS #: 999999992Z

INGREDIENT: ING 5: THE USER SHOULD DETERMINE IF THE RELEASE IS REPORTABLE UNDER APPLICABLE LAWS AND REGULATIONS.
RTECS #: 999999992Z

INGREDIENT: HNDLG/STOR PRECS: CABINET. ALL IGNIT SOURCES SHOULD BE ELIMINATED. SMOKING SHOULD BE PROHIBITED IN STORAGE AREAS. (ING 8)
RTECS #: 999999992Z

INGREDIENT: ING 7: ELECTRICAL INSTALLATIONS SHOULD BE I/A/W ARTICLE 501 OF NEC. NFPA 30, FLAMMABLE & COMBUSTIBLE LIQUIDS (ING 9)
RTECS #: 999999992Z

INGREDIENT: ING 8: CODE, SHOULD BE FOLLOWED FOR ALL STORAGE & HANDLING. FREQUENT CAREFUL LEAKAGE INSPECTIONS SHOULD BE DONE. (ING 10)
RTECS #: 999999992Z

INGREDIENT: ING 9: AUTOMATIC SPRINKLER SYSTEM SHOULD BE PROVIDED. ISOLATE FROM OXIDIZERS, CHEMS CAPABLE OF SPONT HEATING, (ING 11)
RTECS #: 999999992Z

------------------------------- Hazards Identification -------------------------------
LD50 LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.
Routes of Entry: Inhalation: YES  Skin: YES  Ingestion: YES
Reports of Carcinogenicity: NTP: NO  IARC: NO  OSHA: NO
Health Hazards Acute and Chronic: FOR PURE ETHYL ALCOHOL: INHALATION:
EXPOSURE TO OVER 1000 PPM MAY CAUSE HEADACHE, DROWSINESS AND
LASSITUDE, LOSS OF APPETITE AND INABILITY TO CONCENTRATE.
IRRITATION OF THE THROAT. INGESTION: CAN CAUSE DEPRESSION
OF CENTRAL NERVOUS SYSTEM, NAUSEA, VOMITING, DIARRHEA. EYES: LIQUID OR
VAPOR MAY CAUSE (EFFECTS OF OVEREXP)
Explanation of Carcinogenicity: NOT RELEVANT
Effects of Overexposure: HLTH HAZ: IRRITATION. SKIN: MAY CAUSE
IRRITATION AND DETERIORATION OF SKIN ON PROLONGED CONTACT.
Medical Cond Aggravated by Exposure: NONE SPECIFIED BY MANUFACTURER.

--------------------- First Aid Measures ---------------------

First Aid: INGEST: IF VICTIM IS CONSCIOUS & ABLE TO SWALLOW, HAVE VICTIM
DRINK WATER OR MILK TO DILUTE. NEVER GIVE ANYTHING BY MOUTH IF
UNCONSCIOUS OR HAVING CONVULSIONS. CALL MD OR CHEMTREC (POIS CTL)
IMMED. INDUCE VOMITING ONLY IF ADVISED BY MD OR CHEMTREC (POIS
CTL). INHAL: IMMEDIATELY REMOVE VICTIM TO FRESH AIR. IF VICTIM HAS
STOPPED BREATHING, GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH-TO-MOUTH. GET MED
ATTN IMMEDIATELY. (SUPDAT)

--------------------- Fire Fighting Measures ---------------------

Flash Point Method: TCC
Flash Point: 43.0°F, 6.1°C
Lower Limits: 3.3%
Upper Limits: 19%
Extinguishing Media: USE DRY CHEM, "ALCOHOL" FOAM, OR CARBON DIOXIDE;
WATER MAY BE INEFFECTIVE BUT WATER SHOULD BE USED TO KEEP (SUPDAT)
Fire Fighting Procedures: USE NIOSH APPROVED SCBA & FULL PROTECTIVE EQUIPMENT. IF A
LEAK/SPILL HAS NOT IGNITED, USE WATER SPRAY TO DISPERSE VAPORS & TO
PROTECT PERSONS ATTEMPTING TO STOP (SUPDAT)
Unusual Fire/Explosion Hazard: NONE SPECIFIED BY MANUFACTURER.

--------------------- Accidental Release Measures ---------------------

Spill Release Procedures: AVOID UNCONTROLLABLE RELEASES OF THIS MATERIAL.
WHERE SPILLS ARE POSSIBLE, A COMPREHENSIVE SPILL RESPONSE PLAN SHOULD
BE DEVELOPED AND IMPLEMENTED. WEAR APPROPRIATE NIOSH APPROVED RESPIRATORY
PROTECTIVE CLOTHING. CONTAIN SPILLED MATERIAL. TRANSFER TO SECURE CONTAINERS.
WHERE (ING 5)
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.

--------------------- Handling and Storage ---------------------

Handling and Storage Precautions: PROTECT CONTAINER AGAINST PHYSICAL DAMAGE.
DETACHED OR OUTSIDE STORAGE IS PREFERRED. INSIDE STORAGE SHOULD BE IN A
NFPA APPROVED FLAMMABLE LIQUID STORAGE ROOM OR (ING 7)
Other Precautions: WHEN CONTENTS ARE BEING TRANSFERRED, THE METALLIC
CONTAINER MUST BE BONDED TO RECEIVING CONTAINER AND GROUNDED TO AVOID STATIC
DISCHARGES. NEVER USE PRESSURE TO EMPTY. REPLACE CLOSURE SECURELY
AFTER EACH OPENING. KEEP MATERIAL PACKAGED IN DRUMS (ING 13)

--------------------- Exposure Controls/Personal Protection ---------------------
Respiratory Protection: WERE EXPOSURE IS LIKELY TO EXCEED ACCEPTABLE CRITERIA, USE NIOSH APPROVED RESPIRATORY EQUIPMENT. RESPIRATORS SHOULD BE SELECTED BASED ON THE FORM AND CONCENTRATION OF CONTAMINANT IN AIR & IN ACCORDANCE WITH OSHA (29 CFR 1910.134).

Ventilation: HANDLE IN THE PRESENCE OF ADEQUATE VENTILATION.

Protective Gloves: IMPERVIOUS GLOVES.

Eye Protection: ANSI APPROVED CHEM WORKERS GOGGLES.

Other Protective Equipment: ANSI APPROVED EYE WASH & DELUGE SHOWER. WEAR PROTECTIVE CLTHG WHICH IS IMPERVIOUS TO PRODUCT FOR THE (ING. 17)

Work Hygienic Practices: NONE SPECIFIED BY MANUFACTURER.

Supplemental Safety and Health


Physical/Chemical Properties

Boiling Pt:B.P. Text:173F, 78C
Melt/Freeze Pt:M.P/F.P Text:-173F, -114C
Vapor Pres:44.6 @ 68F
Vapor Density:1.59
Spec Gravity:0.8150
Solubility in Water: COMPLETE
Appearance and Odor: CLEAR AND COLORLESS.

Stability and Reactivity Data

Stability Indicator/Materials to Avoid:YES
CONTACT WITH ACETYL CHLORIDE AND A WIDE RANGE OF OXIDIZING AGENTS MAY REACT VIOLENTLY.
Stability Condition to Avoid: NONE SPECIFIED BY MANUFACTURER.
Hazardous Decomposition Products: NONE SPECIFIED BY MANUFACTURER.

Disposal Considerations

Waste Disposal Methods: ALL RECOVERED MATERIAL SHOULD BE PACKAGED, LABELED, TRANSPORTED AND DISPOSED OF OR RECLAIMED IN CONFORMANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS AND IN CONFORMANCE WITH GO OD ENGINEERING PRACTICES.

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CUMBERLAND-SWAN INC DIV OF PERRIGO CO -- ISOPROPYL ALCOHOL (IPA) -- 6810-00-983-8551

----------------------- Product Identification -----------------------

Product ID: ISOPROPYL ALCOHOL (IPA)
MSDS Date: 03/01/2000
FSC: 6810
NIIN: 00-983-8551
Status Code: A
MSDS Number: CKYJB

--- Responsible Party ---
Company Name: CUMBERLAND-SWAN INC DIV OF PERRIGO CO
Address: 1 SWAN DR
Box: 129
City: SMYRNA
State: TN
ZIP: 37167
Country: US
Info Phone Num: 615-459-8900
Emergency Phone Num: 615-459-8900 EXT. 5270
Preparer's Name: NOT PROVIDED
CAGE: 0YRB8

--- Contractor Identification ---
Company Name: CUMBERLAND-SWAN INC DIV OF PERRIGO CO
Address: 1 SWAN DR
Box: 129
City: SMYRNA
State: TN
ZIP: 37167
Country: US
Phone: 615-459-8900
CAGE: 0YRB8
Company Name: P AND D CREATIVE CO, INC
Address: 20140 SCHOLAR DR SUITE 211
Box: City: HAGERSTOWN
State: MD
ZIP: 21742
Country: US
Phone: 301-797-3503
Contract Num: SP0450-01-M-D612
CAGE: 1CVB1

----------------------- Composition/Information on Ingredients -----------------------

Ingredient: ISOPROPYL ALCOHOL
CAS: 67-63-0
RTECS #: NT8050000
= Wt: 50.
Other REC Limits: NOT PROVIDED
OSHA PEL: 980 MG/M3; 400 PPM
ACGIH TLV: 983 MG/M3; 400 PPM
ACGIH STEL: 1230 MG/M3; 500 PPM

----------------------- Hazards Identification -----------------------

LD50 LC50 Mixture: LD50 (ORAL, RAT) 5,840 MG/KG
Routes of Entry: Inhalation: YES  Skin: YES  Ingestion: YES
Reports of Carcinogenicity: NTP: NO  IARC: NO  OSHA: NO
Health Hazards: Acute and Chronic: INHALATION: MILD IRRITATION OF EYES, NOSE AND THROAT. INGESTION: DROWSINESS, HEADACHE. DERMAL CONTACT: DRY, CRACKING SKIN. ACUTE EFFECTS: IRRITATION OF SKIN AND/OR UPPER RESPIRATORY TRACT AS NOTED ABOV E. ACUTE CNS DEPRESSION MAY BE MANIFESTED AS GIDDINESS, HEADACHE, DIZZINESS AND/OR NAUSEA. CHRONIC EFFECTS: CHRONIC EXPOSURE CAN RESULT IN SKIN IRRITATION AND CONTACT DERMITIS.
Explanation of Carcinogenicity: NOT IDENTIFIED AS A CARCINOGEN BY OSHA, IARC, OR NTP.
Effects of Overexposure: INHALATION: MILD IRRITATION OF EYES, NOSE AND THROAT. INGESTION: DROWSINESS, HEADACHE. DERMAL CONTACT: DRY, CRACKING SKIN.
Medical Conditions Aggravated by Exposure: PRE-EXISTING DISORDERS OF THE SKIN, EYES, AND RESPIRATORY TRACT MAY BE EXACERBATED BY EXPOSURE TO ISOPROPYL ALCOHOL.

First Aid Measures

First Aid: EYE: FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. SKIN: FLUSH WITH WATER. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION. INGESTION: DO NOT INDUCE VOMITING IF VICTIM IS UNCONSCIOUS OR DROWSY. SEEK MEDICAL ATTENTION OR CONTACT THE POISON CONTROL CENTER. INHALATION: REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. SEEK MEDICAL ATTENTION IF BREATHING CONTINUES TO BE DIFFICULT.

Fire Fighting Measures

Flash Point Method: TOC
Flash Point: 23.6°C, 74.5°F
Autoignition Temp: N/A
Extinguishing Media: WATER FOG, ALCOHOL FOAM, DRY CHEMICAL OR CO2.
Fire Fighting Procedures: WATER FOG, ALCOHOL FOAM, DRY CHEMICAL OR CO2. COMPLETE TURNOUT GEAR. COOL CONTAINERS EXPOSED TO FIRE WITH WATER.
Unusual Fire/Explosion Hazard: CONTAINERS EXPOSED TO INTENSE HEAT FROM FIRES SHOULD BE COOLED WITH LARGE AMOUNT OF WATER TO PREVENT BUILDUP OF INTERNAL PRESSURE DUE TO VAPOR GENERATION WHICH COULD RESULT IN CONTAINER RUPTURE.

Accidental Release Measures

Spill Release Procedures: ELIMINATE ALL IGNITION SOURCES. EQUIPMENT MUST BE GROUNDED TO PREVENT SPARKING. EVACUATE AREA OF UNPROTECTED PERSONNEL. CONTAIN SOURCE OF SPILL. DIKE OR OTHERWISE CONFINE SPILLED PRODUCT. UNCONTROLLED RELEASE TO AIR, LAND, OR WATER MAY BE REPORTABLE TO NATIONAL RESPONSE CENTER (800-424-8802). SMALL: TAKE UP WITH ABSORBENT MATERIAL AND PLACE IN NON-SPARKING CONTAINER. SEAL TIGHTLY.
Neutralizing Agent: NOT RELEVANT

Handling and Storage

Handling and Storage Precautions: STORE IN TIGHTLY CLOSED CONTAINERS IN A COOL, DRY AREA AWAY FROM HEAT AND OTHER POSSIBLE IGNITION SOURCES. USE NON-SPARKING TOOLS TO OPEN CONTAINERS. MAINTAIN
APPROPRIATE CLASS OF FIRE EXTINGUISHERS NEARBY IN CASE OF FIRE.
Other Precautions: NOT PROVIDED

================== Exposure Controls/Personal Protection =================

Respiratory Protection: NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED WHEN ABOVE PEL/TWA.
Ventilation: USE EXPLOSION PROOF VENTILATION EQUIPMENT AS NECESSARY TO MAINTAIN CONCENTRATIONS BELOW PEL. GROUND ALL CONTAINERS TO PREVENT STATIC SPARKS.
Protective Gloves: GLOVES
Eye Protection: GOGGLES
Other Protective Equipment: NOT PROVIDED
Work Hygienic Practices: CLEAN PPE AND WORK CLOTHING CONTAMINATED PRIOR TO REUSE. AFTER WORKING, WITH THIS PRODUCT, BE SURE TO WASH BEFORE EATING, SMOKING, DRINKING, OR APPLYING COSMETICS.

Supplemental Safety and Health
TRAIN EMPLOYEES ON THE HAZARD OF ISOPROPYL ALCOHOL. ABBREVIATION: N/A = NOT APPLICABLE. N/AV = NOT AVAILABLE. N/K = UNKNOWN. N/P = NOT PROVIDED. N/R = NOT RELEVANT. N/D = NOT DETERMINED. N/E = NOT ESTABLISHED.

================== Physical/Chemical Properties =================

HCC: F3
NRC/State Lic Num: NOT RELEVANT
Boiling Pt: 80.0°C, 176.0°F
Melt/Freeze Pt: M.P/F.P Text: -32°C to -50°C
Decomp Temp/Decomp Text: NOT PROVIDED
Vapor Pres: 29 @ 68°F
Spec Gravity: 0.929
Viscosity: NOT PROVIDED
Evaporation Rate & Reference: NOT PROVIDED
Solubility in Water: SOLUBLE
Appearance and Odor: COLORLESS, VOLATILE LIQUID WITH THE ODOR OF RUBBING ALCOHOL
Percent Volatiles by Volume: NOT PROVIDED
Corrosion Rate: NOT PROVIDED

================== Stability and Reactivity Data =================

Stability Indicator/Materials to Avoid: YES
STRONG OXIDIZERS, ACETALDEHYDE, CHLORINE, ETHYLENE OXIDE, ACIDS, ISOCYANATES
Stability Condition to Avoid: HEAT, SPARKS, OPEN FLAME. DO NOT STORE IN ALUMINUM > 120 F.
Hazardous Decomposition Products: CO AND UNIDENTIFIED ORGANIC COMPOUNDS MAY BE FORMED

================== Toxicological Information =================

Toxicological Information: LD50 (ORAL, RAT) 5,840 MG/KG; 13,000 MG/KG (ACUTE DERMAL - RABBIT). LD50 16,000 PPM/8 HR (INHALATION, RAT).
MUTAGENICITY: NOT INDICATED. LDL0: 5,000 MG/KG (ORAL - RABBIT).
REPRODUCTIVE EFFECTS: NOT INDICATED.
Ecological Information

Ecological: ECOTOXICITY: N/A. ENVIRONMENTAL FATE: N/A. SOIL ABSORPTION/MOBILITY: HIGHLY MOBILE. ENVIRONMENTAL DEGRADATION: SHOULD BE REMOVED READILY FROM SOILS AND WATER BY VOLATILIZATION AND BIODEGRADATION.

Disposal Considerations

Waste Disposal Methods: CONTACT YOUR SUPPLIER OR LICENSED CONTRACTOR FOR DETAILED RECOMMENDATIONS. FOLLOW APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS. CONSIDER FUELS BLENDING AS AN ALTERNATIVE TO INCINERATION.

MSDS Transport Information

Transport Information: DOT SHIPPING NAME: ISOPROPANOL. DOT HAZARD CLASS: 3. UN ID NUMBER: UN 1219. DOT PACKING GROUP: I I. DOT LABEL: FLAMMABLE LIQUID.

Regulatory Information

SARA Title III Information: CERCLA SUBSTANCE: N/A. HAZARDOUS AIR POLLUTANT (CAA): NO. SARA 311/312 CODES: N/A. SARA TOXIC CHEMICAL: YES (STRONG MANUFACTURING ONLY). CERCLA REPORTABLE QUANTITY: 10,000 LBS (DEFAULT).


State Regulatory Information: NOT PROVIDED

Other Information

Disclaimer (provided with this information by the compiling agencies): This information is formulated for use by elements of the Department of Defense. The United States of America in no manner whatsoever, expressly or implied, warrants this information to be accurate and disclaims all liability for its use. Any person utilizing this document should seek competent professional advice to verify and assume responsibility for the suitability of this information to their particular situation.
METHYL ISOBUTYL KETONE

MSDS Number: M3588 ***** Effective Date: 07/06/06 ***** Supersedes: 08/17/05

1. Product Identification

Synonyms: 2-Pentanone, 4-methyl-; Hexone; MIBK; Isopropylacetone
CAS No.: 108-10-1
Molecular Weight: 100.16
Chemical Formula: CH₃COCH₂CH(CH₃)₂
Product Codes:
J.T. Baker: 4855, 5384, 9212, 9320, 9322, 9405
Mallinckrodt: 5923, 6247, 6264

2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Percent</th>
<th>Hazardous</th>
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<tbody>
<tr>
<td>Methyl Isobutyl Ketone</td>
<td>108-10-1</td>
<td>90 - 100%</td>
<td>Yes</td>
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3. Hazards Identification

Emergency Overview

DANGER! HARMFUL OR FATAL IF SWALLOWED. FLAMMABLE LIQUID AND VAPOR. MAY FORM EXPLOSIVE PEROXIDES IN AIR. HARMFUL IF INHALED. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

SAF-T-DATA™ Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate (Life)
Flammability Rating: 3 - Severe (Flammable)
Reactivity Rating: 2 - Moderate
Contact Rating: 2 - Moderate
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES;
Potential Health Effects

Inhalation:
Causes irritation to the nose and throat. Concentrations above the TLV may cause headache, dizziness, nausea, shortness of breath, and vomiting. Higher concentrations may cause central nervous system depression and unconsciousness.

Ingestion:
May produce abdominal pain, nausea. Aspiration into lungs can produce severe lung damage and is a medical emergency. Other symptoms expected to parallel inhalation.

Skin Contact:
Causes irritation to skin. Symptoms include redness, itching, and pain.

Eye Contact:
Vapors can irritate the eyes. Splashes cause severe pain and irritation.

Chronic Exposure:
Prolonged skin contact may defat the skin and produce dermatitis. Based on animal studies, chronic exposure may affect liver and kidneys.

Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders, eye problems, impaired respiratory function or central nervous system conditions may be more susceptible to the effects of this substance.

4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:
Aspiration hazard. If swallowed, vomiting may occur spontaneously, but DO NOT INDUCE. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Never give anything by mouth to an unconscious person. Call a physician immediately.

Skin Contact:
Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention.

5. Fire Fighting Measures

Fire:
Flash point: 14C (57F) CC
Autoignition temperature: 448C (838F)
Flammable limits in air % by volume:
lel: 1.2; uel: 8.0
Flammable Liquid

Explosion:
Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Sealed containers may rupture when heated. Sensitivity to mechanical impact: Yes, if peroxides are formed. Sensitive to static discharge.

Fire Extinguishing Media:
Dry chemical, foam or carbon dioxide. Water may be ineffective. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e.g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

J. T. Baker SOLUSORB® solvent adsorbent is recommended for spills of this product.

7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Before using bulk quantities of this material, test for presence of explosive peroxides. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
- OSHA Permissible Exposure Limit (PEL):
  100 ppm (TWA)

- ACGIH Threshold Limit Value (TLV):
  50 ppm (TWA), 75 ppm (STEL)

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, a full facepiece respirator with organic vapor cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to
9. Physical and Chemical Properties

Appearance:
Clear, colorless liquid.

Odor:
Slight camphor odor

Solubility:
Moderately soluble in water (1-10%)

Specific Gravity:
0.80 @ 20C

pH:
No information found.

% Volatiles by volume @ 21C (70F):
100

Boiling Point:
117C (243F)

Melting Point:
-85C (-121F)

Vapor Density (Air=1):
3.5

Vapor Pressure (mm Hg):
16 @ 20C (68F)

Evaporation Rate (BuAc=1):
1.6

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. May form explosive peroxides in air.

Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Aldehydes, Nitric Acid, Perchloric Acid, Strong Oxidizers. Violent reaction with Potassium-tert-butoxide.

Conditions to Avoid:
Heat, flame, ignition sources, air, incompatibles

11. Toxicological Information

Oral rat LD50: 2080 mg/kg; Skin rabbit > 20 mL/kg; irritation eye rabbit, Standard Draize, 40 mg severe; investigated as a reproductive effector.

--------\Cancer Lists\----------

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>NTP Carcinogen</th>
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<tbody>
<tr>
<td>Methyl Isobutyl Ketone (108-10-1)</td>
<td>No</td>
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<tr>
<td></td>
<td>No</td>
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<td></td>
<td>None</td>
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</tbody>
</table>
12. Ecological Information

Environmental Fate:
When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material may leach into groundwater. When released into the soil, this material may evaporate to a moderate extent. When released into water, this material may evaporate to a moderate extent. This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to be readily degraded by photolysis. When released into the air, this material is expected to have a half-life between 1 and 10 days.

Environmental Toxicity:
This material is not expected to be toxic to terrestrial life. The LC50/96-hour values for fish are over 100 mg/l.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: METHYL ISOBUTYL KETONE
Hazard Class: 3
UN/NA: UN1245
Packing Group: II
Information reported for product/size: 20L

International (Water, I.M.O.)

Proper Shipping Name: METHYL ISOBUTYL KETONE
Hazard Class: 3
UN/NA: UN1245
Packing Group: II
Information reported for product/size: 20L

15. Regulatory Information

\---\Chemical Inventory Status - Part 1\---
Ingredient: Methyl Isobutyl Ketone (108-10-1)
TSCA EC Japan Australia
Yes Yes Yes Yes

\---\Chemical Inventory Status - Part 2\---
Ingredient: Methyl Isobutyl Ketone (108-10-1)
---Canada---
Korea DSL NDSL Phil.
Yes Yes No Yes

\---\Federal, State & International Regulations - Part 1\---
SARA 302 SARA 313
METHYL ISOBUTYL KETONE

<table>
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<th>Ingredient</th>
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<th>TPQ</th>
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Federal, State & International Regulations - Part 2

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<td>Methyl Isobutyl Ketone (108-10-1)</td>
<td>261.33</td>
<td>8(d)</td>
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</table>

Chemical Weapons Convention: No  TSCA 12(b): No  CDTA: Yes
SARA 311/332: Acute: Yes  Chronic: Yes  Fire: Yes  Pressure: No
Reactivity: Yes (Pure / Liquid)

Australian Hazchem Code: 3[V]E
Poison Schedule: S5
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 2 Flammability: 3 Reactivity: 1

Label Hazard Warning:
DANGER! HARMFUL OR FATAL IF SWALLOWED. FLAMMABLE LIQUID AND VAPOR. MAY FORM EXPLOSIVE PEROXIDES IN AIR. HARMFUL IF INHALED. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Label Precautions:
Keep away from heat, sparks and flame.
Avoid contact with eyes, skin and clothing.
Avoid breathing vapor.
Keep container tightly closed.
Use only with adequate ventilation.
Wash thoroughly after handling.

Label First Aid:
Aspiration hazard. If swallowed, vomiting may occur spontaneously, but DO NOT INDUCE. If vomiting occurs, keep head below hips to prevent aspiration into lungs. Never give anything by mouth to an unconscious person. Call a physician immediately. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse.
Get medical attention.

Product Use:
Laboratory Reagent.

Revision Information:
MSDS Section(s) changed since last revision of document include: 3.

Disclaimer:
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