M A T E R I A L  S A F E T Y  D A T A  S H E E T

SECTION 1. - - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -
CATALOG #: 448516
NAME: 2-PENTANONE, REDISTILLED, 99%

SECTION 2. - - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -
CAS #: 107-87-9
MF: C5H10O
EC NO: 203-528-1
SYNONYMS
ETHYL ACETONE * METHYL-PROPYL-CETONE (FRENCH) * METHYLPROPYL KETONE *
METHYL-N-PROPYL KETONE * METHYL PROPYL KETONE (ACGIH:OSHA) *
METYLOPROPYLOKETON (POLISH) * MPK * 2-PENTANONE (OSHA) *

SECTION 3. - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - - -
LABEL PRECAUTIONARY STATEMENTS
FLAMMABLE (USA)
HIGHLY FLAMMABLE (EU)
HARMFUL
HARMFUL IF SWALLOWED.
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
TARGET ORGAN(S):
NERVES
LIVER
KEEP CONTAINER IN A WELL-VENTILATED PLACE.
KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.
DO NOT EMPTY INTO DRAINS.
TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGES.

SECTION 4. - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - -
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.
CALL A PHYSICIAN.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL
RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER
FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING AND
SHOES. CALL A PHYSICIAN.
IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER
FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING
THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SECTION 5. - - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -
EXTINGUISHING MEDIA
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
WATER MAY BE EFFECTIVE FOR COOLING, BUT MAY NOT EFFECT EXTINGUISHMENT.
SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO
PREVENT CONTACT WITH SKIN AND EYES.
UNUSUAL FIRE AND EXPLOSIONS HAZARDS
FLAMMABLE LIQUID.
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.
VAPOR MAY TRAVEL CONSIDERABLE DISTANCE TO SOURCE OF IGNITION AND
FLASH BACK.
CONTAINER EXPLOSION CAN OCCUR UNDER FIRE CONDITIONS. IN ADVANCED OR
MASSIVE FIRES THE AREA SHOULD BE EVACUATED AND THE FIRE SHOULD BE
FOUGHT FROM A REMOTE EXPLOSION-RESISTANT LOCATION.

SECTION 6. - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - -
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES. COVER WITH DRY-LIME, SAND, OR SODA ASH. PLACE IN COVERED CONTAINERS USING NON-SPARKING TOOLS AND TRANSPORT OUTDOORS. VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE. EVACUATE AREA.

SHUT OFF ALL SOURCES OF IGNITION.

SECTION 7. - - - - - - HANDLING AND STORAGE- - - - - - - - - - - REFER TO SECTION 8.

SECTION 8. - - - - - - EXPOSURE CONTROLS/PERSOAL PROTECTION- - - - - - SAFETY SHOWER AND EYE BATH.

USE NONSPARKING TOOLS.

MECHANICAL EXHAUST REQUIRED.

DO NOT BREATHE VAPOR.

AVOID CONTACT WITH EYES, SKIN AND CLOTHING.

AVOID PROLONGED OR REPEATED EXPOSURE.

NIOSH/MSHA-APPROVED RESPIRATOR.

COMPATIBLE CHEMICAL-RESISTANT GLOVES.

CHEMICAL SAFETY GOGGLES.

WASH THOROUGHLY AFTER HANDLING.

WASH CONTAMINATED CLOTHING BEFORE REUSE.

KEEP CONTAINER CLOSED.

KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME.

STORE IN A COOL DRY PLACE.

STORE UNDER NITROGEN.

SECTION 9. - - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - - - -

PHYSICAL PROPERTIES

BOILING POINT: 100 C TO 110 C
MELTING POINT: -78 C
FLASHPOINT 45 F

EXPLOSION LIMITS IN AIR:

<table>
<thead>
<tr>
<th>Upper</th>
<th>8.2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

AUTOIGNITION TEMPERATURE: 941 F

VAPOR PRESSURE: 27MM 20 C

SPECIFIC GRAVITY: 0.802

VAPOR DENSITY: 3

SWISS POISON CLASS: 4

SECTION 10. - - - - - - STABILITY AND REACTIVITY - - - - - - - -

STABILITY

STABLE.

INCOMPATIBILITIES

OXIDIZING AGENTS

STRONG BASES

REDUCING AGENTS

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

CARBON MONOXIDE, CARBON DIOXIDE

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

SECTION 11. - - - - - - TOXICOLOGICAL INFORMATION - - - - - - - -

ACUTE EFFECTS

CAUSES SKIN IRRITATION.

MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.

CAUSES EYE IRRITATION.

MAY BE HARMFUL IF INHALED.

HARMFUL IF SWALLOWED.

VAPOR OR MIST IS IRRITATING TO THE EYES, MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.

MAY CAUSE DECREASE IN BLOOD PRESSURE.

CNS DEPRESSION

NARCOTIC EFFECT

NAUSEA, DIZZINESS AND HEADACHE

EXPOSURE TO AND/OR CONSUMPTION OF ALCOHOL

MAY INCREASE TOXIC EFFECTS.

CHRONIC EFFECTS
TARGET ORGAN(S):  
NERVES  
LIVER  
HEART  

RTECS #: SA7875000  
2-PENTANONE  

IRRITATION DATA  
SKN-RBT 405 MG OPEN MLD  
UCDS** 7/20/1967  

TOXICITY DATA  
ORL-RAT LD50:1600 MG/KG  
38MKX 2C, 4735, 1982  
IPR-RAT LD50:800 MG/KG  
38MKX 2C, 4735, 1982  
ORL-MUS LD50:1600 MG/KG  
38MKX 2C, 4735, 1982  
IPR-MUS LD50:1600 MG/KG  
38MKX 2C, 4735, 1982  
SKN-RBT LD50:6500 MG/KG  
NPIRI* 1, 83, 1974  
ORL-MAM LD50:3700 MG/KG  
GTPZAB 32(10), 25, 1988  
IHL-MAM LC50:22 GM/M3  
GISAAA 51(5), 61, 1986  

TARGET ORGAN DATA  
SENSE ORGANS AND SPECIAL SENSES (OTHER EYE EFFECTS)  
BEHAVIORAL (HEADACHE)  
GASTROINTESTINAL (NAUSEA OR VOMITING)  
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.  

SECTION 12. - - - - - - - - - - - - - - - - - - ECOLOGICAL INFORMATION - - - - - - - - - - - -  
DATA NOT YET AVAILABLE.  

SECTION 13. - - - - - - - - - - DISPOSAL CONSIDERATIONS - - - - - - - - - -  
CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.  
BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER BUT EXERT EXTRA CARE IN IGNITING AS THIS MATERIAL IS HIGHLY FLAMMABLE.  
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.  

SECTION 14. - - - - - - - - - - TRANSPORT INFORMATION - - - - - - - - - -  
CONTACT ALDRICH CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.  

SECTION 15. - - - - - - - - - - REGULATORY INFORMATION - - - - - - - - - -  
EUROPEAN INFORMATION  
HIGHLY FLAMMABLE  
HARMFUL  
R 11  
HIGHLY FLAMMABLE.  
R 22  
HARMFUL IF SWALLOWED.  
R 36/37/38  
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.  
S 9  
KEEP CONTAINER IN A WELL-VENTILATED PLACE.  
S 16  
KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.  
S 29  
DO NOT EMPTY INTO DRAINS.  
S 33  
TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGES.  

REVIEWS, STANDARDS, AND REGULATIONS  
OEL-MAK  
ACGIH TLV-STE L 250 PPM  
DTLV*** TLV/BEI, 1999  
ACGIH TLV-TWA 200 PPM  
DTLV** TLV/BEI, 1999  
MSHA STANDARD-AIR:TWA 200 PPM (700 MG/M3)  
DTLV* 3, 200, 1971  
OSHA PEL (GEN INDU):8H TWA 200 PPM (700 MG/M3)  
CFRGR 29, 1910.1000, 1994  
OSHA PEL (CONSTRUCT):8H TWA 200 PPM (700 MG/M3)  
CFRGR 29, 1926.55, 1994  
OSHA PEL (SHIPYARD):8H TWA 200 PPM (700 MG/M3)  
CFRGR 29, 1915.1000, 1993  
OSHA PEL (FED CONT):8H TWA 200 PPM (700 MG/M3)
CFRGBR 41,50-204.50,1994

OEL-AUSTRALIA: TWA 200 PPM (700 MG/M3), STEL 250 PPM, JAN1993
OEL-AUSTRIA: MAK 200 PPM (700 MG/M3), JAN1999
OEL-BELGIUM: TWA 200 PPM (705 MG/M3), STEL 250 PPM (881 MG/M3), JAN1993
OEL-DENMARK: TWA 200 PPM (700 MG/M3), JAN1999
OEL-FINLAND: TWA 200 PPM (700 MG/M3), STEL 250 PPM (875 MG/M3), JAN1999
OEL-FRANCE: VME 200 PPM (700 MG/M3), JAN1999
OEL-GERMANY: MAK 200 PPM (700 MG/M3), JAN1999
OEL-THE NETHERLANDS: MAC-TGG 200 PPM (700 MG/M3), JAN1999
OEL-NORWAY: TWA 75 PPM (260 MG/M3), JAN1999
OEL-THE PHILIPPINES: TWA 200 PPM (700 MG/M3), JAN1993
OEL-Poland: MAC(TWA) 100 MG/M3, MAC(STEL) 800 MG/M3, JAN1999
OEL-Russia: STEL 200 MG/M3, JAN1993
OEL-SWITZERLAND: MAK-W 200 PPM (700 MG/M3), KZG-W 400 PPM (1400 MG/M3), JAN1999
OEL-Turkey: TWA 200 PPM (700 MG/M3), JAN1993
OEL-UNITED KINGDOM: TWA 200 PPM (716 MG/M3), STEL 250 PPM, SEP2000
OEL IN ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV;
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NIOSH REL TO METHYL PROPYL KETONE-AIR:10H TWA 150 PPM
NIOSH* DHHS #92-100,1992
NOHS 1974: HZD 54480; NIS 4; TNF 39; NOS 11; TNE 789
NOES 1983: HZD 54480; NIS 17; TNF 930; NOS 13; TNE 8218; TFE 1129
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001
NIOSH ANALYTICAL METHOD, 1994: KETONES I, 1300

SECTION 16. OTHER INFORMATION

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