

## **MATERIAL SAFETY DATA SHEET**

### **BUTANONE**

CAS #: 78-93-3  
MF: C4H8O  
EC NO: 201-159-0

#### **SYNONYMS**

ACETONE METHYL; AETHYLMETHYLKETON (GERMAN); BUTANONE;  
BUTANONE (OSHA); BUTANONE 2 (FRENCH); 3-BUTANONE; ETHYL METHYL  
CETONE (FRENCH); ETHYLMETHYLKETON (DUTCH); KETONE, ETHYL METHYL;  
MEETCO; MEK (OSHA); METHYL ACETONE; METHYL ETHYL KETONE  
(ACGIH:OSHA); METILETILCHETONE (ITALIAN); METYLOETYLOKETON (POLISH)

RCRA WASTE NUMBER U159

#### **HAZARDS IDENTIFICATION**

##### **LABEL PRECAUTIONARY STATEMENTS**

FLAMMABLE (USA)  
HIGHLY FLAMMABLE (EU)  
IRRITANT  
IRRITATING TO RESPIRATORY SYSTEM AND SKIN.  
RISK OF SERIOUS DAMAGE TO EYES.  
VAPORS MAY CAUSE DROWSINESS AND DIZZINESS.  
TARGET ORGAN(S): CENTRAL NERVOUS SYSTEM  
KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.  
TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGES.  
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF  
WATER AND SEEK MEDICAL ADVICE.  
WEAR EYE/FACE PROTECTION.  
HYGROSCOPIC

##### **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 CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS  
AMOUNTS OF WATER.  
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF  
WATER FOR AT LEAST 15 MINUTES.

##### **FIRE FIGHTING MEASURES**

EXTINGUISHING MEDIA: WATER SPRAY; CARBON DIOXIDE; DRY CHEMICAL  
POWDER OR APPROPRIATE FOAM.

##### **SPECIAL FIREFIGHTING PROCEDURES**

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING  
TO PREVENT CONTACT WITH SKIN AND EYES.

##### **UNUSUAL FIRE AND EXPLOSIONS HAZARDS**

VAPOR MAY TRAVEL CONSIDERABLE DISTANCE TO SOURCE OF IGNITION AND  
FLASH BACK.

CONTAINER EXPLOSION MAY OCCUR UNDER FIRE CONDITIONS.  
FLAMMABLE LIQUID.  
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

#### 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.  
USE NONSPARKING TOOLS.

#### HANDLING AND STORAGE; EXPOSURE CONTROLS/PERSONAL PROTECTION

SAFETY SHOWER AND EYE BATH.  
USE NONSPARKING TOOLS.  
MECHANICAL EXHAUST REQUIRED.  
REMOVE AND WASH CONTAMINATED CLOTHING PROMPTLY.  
WASH THOROUGHLY AFTER HANDLING.  
DO NOT BREATHE VAPOR.  
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.  
AVOID PROLONGED OR REPEATED EXPOSURE.  
NIOSH/MSHA-APPROVED RESPIRATOR.  
COMPATIBLE CHEMICAL-RESISTANT GLOVES.  
CHEMICAL SAFETY GOGGLES.  
KEEP TIGHTLY CLOSED.  
KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME.  
STORE IN A COOL DRY PLACE.  
STORE UNDER N<sub>2</sub>.

#### PHYSICAL AND CHEMICAL PROPERTIES

##### PHYSICAL PROPERTIES

BOILING POINT: 80°C  
MELTING POINT: -87°C  
FLASHPOINT 26°F  
EXPLOSION LIMITS IN AIR: UPPER 10.1%; LOWER 1.8%  
AUTOIGNITION TEMPERATURE: 960°F  
VAPOR PRESSURE: 71MM 20°C  
SOLUBILITY: WATER -Z26060; ALCOHOL, ETHER, BENZENE  
SPECIFIC GRAVITY: 0.805  
VAPOR DENSITY: 2.49  
ODOR THRESHOLD: 5.4-10 PPM  
FREEZING POINT: -85.9 C  
VISCOSITY 0.40 PAS  
SWISS POISON CLASS: 5

##### STABILITY AND REACTIVITY-

STABILITY: STABLE.  
INCOMPATIBILITIES: PROTECT FROM MOISTURE; OXIDIZING AGENTS;  
STRONG REDUCING AGENTS  
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE  
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

## TOXICOLOGICAL INFORMATION

### ACUTE EFFECTS

CAUSES SKIN IRRITATION.  
MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.  
CAUSES SEVERE EYE IRRITATION.  
MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER  
RESPIRATORY TRACT.  
MAY BE HARMFUL IF INHALED.  
MAY BE HARMFUL IF SWALLOWED.  
CAN CAUSE CNS DEPRESSION.  
EXPOSURE CAN CAUSE:  
GASTROINTESTINAL DISTURBANCES  
NARCOTIC EFFECT  
CHRONIC EFFECTS  
TARGET ORGAN(S): CENTRAL NERVOUS SYSTEM  
RTECS #: EL6475000: 2-BUTANONE

### IRRITATION DATA

EYE-HMN 350 PPM (JIHTAB 25,282,1943)  
SKN-RBT 500 MG/24H MOD (JIHTAB 25,282,1943)  
SKN-RBT 402 MG/24H MLD (TXAPA9 19,276,1971)  
SKN-RBT 13780 UG/24H OPEN MLD (AIHAAP 23,95,1962)  
EYE-RBT 80 MG (TXAPA9 19,276,1971)

### TOXICITY DATA

ORL-RAT LD50:2737 MG/KG (TXAPA9 19,699,1971)  
IHL-RAT LC50:23500 MG/M3/8H (AIHAAP 20,364,1959)  
IPR-RAT LD50:607 MG/KG (ENVRAL 40,411,1986)  
ORL-MUS LD50:4050 MG/KG (TOLED5 30,13,1986)  
IHL-MUS LC50:32 GM/M3/4H (CUTOEX 1,47,1993)  
IPR-MUS LD50:616 MG/KG (SCCUR\* -,6,1961)  
SKN-RBT LD50:6480 MG/KG (SHELL\* MSDS-5390-4)  
IHL-MAM LC50:38 GM/M3 (GISAAA 51(5),61,1986)

### TARGET ORGAN DATA

SENSE ORGANS AND SPECIAL SENSES (OTHER OLFACTION EFFECTS)  
SENSE ORGANS AND SPECIAL SENSES (CONJUNCTIVA IRRITATION)  
LUNGS, THORAX OR RESPIRATION (OTHER CHANGES)  
LIVER (OTHER CHANGES)  
IMMUNOLOGICAL INCLUDING ALLERGIC (OTHER IMMEDIATE)  
EFFECTS ON EMBRYO OR FETUS (FETOTOXICITY)  
SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)  
BIOCHEMICAL EFFECTS (LIPIDS INCLUDING TRANSPORT)  
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES  
(RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR  
COMPLETE INFORMATION.

### ECOLOGICAL INFORMATION

DATA NOT YET AVAILABLE.

### 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.

#### REGULATORY INFORMATION

##### EUROPEAN INFORMATION

EC INDEX NO: 606-002-00-3

HIGHLY FLAMMABLE

IRRITANT

R 11: HIGHLY FLAMMABLE.

R 36: IRRITATING TO EYES.

R 66: REPEATED EXPOSURE MAY CAUSE SKIN DRYNESS OR CRACKING.

R 67 VAPORS MAY CAUSE DROWSINESS AND DIZZINESS.

S 9 KEEP CONTAINER IN A WELL-VENTILATED PLACE.

S 16 KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.

#### REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK

ACGIH TLV-STEL 300 PPM (DTLVS\* TLV/BEI,1999)

ACGIH TLV-TWA 200 PPM (DTLVS\* TLV/BEI,1999)

EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION

FEREAC 54,7740,1989

MSHA STANDARD-AIR:TWA 200 PPM (590 MG/M<sup>3</sup>)

DTLVS\* 3,29,1971

OSHA PEL (GEN INDU):8H TWA 200 PPM (590 MG/M<sup>3</sup>)

CFRGBR 29,1910.1000,1994

OSHA PEL (CONSTRUC):8H TWA 200 PPM (590 MG/M<sup>3</sup>)

CFRGBR 29,1926.55,1994

OSHA PEL (SHIPYARD):8H TWA 200 PPM (590 MG/M<sup>3</sup>)

CFRGBR 29,1915.1000,1993

OSHA PEL (FED CONT):8H TWA 200 PPM (590 MG/M<sup>3</sup>)

CFRGBR 41,50-204.50,1994

OEL-AUSTRALIA: TWA 150 PPM (445 MG/M<sup>3</sup>), STEL 300 PPM, JAN1993

OEL-AUSTRIA: MAK 200 PPM (590 MG/M<sup>3</sup>), JAN1999

OEL-BELGIUM: TWA 200 PPM (590 MG/M<sup>3</sup>), STEL 300 PPM (885 MG/M<sup>3</sup>), JAN1993

OEL-DENMARK: TWA 50 PPM (145 MG/M<sup>3</sup>), SKIN, JAN1999

OEL-FINLAND: STEL 100 PPM, JAN1993

OEL-FRANCE: VME 200 PPM (600 MG/M<sup>3</sup>), JAN1999

OEL-GERMANY: MAK 200 PPM (590 MG/M<sup>3</sup>), JAN1999

OEL-HUNGARY: TWA 200 MG/M<sup>3</sup>, STEL 600 MG/M<sup>3</sup>, JAN1993

OEL-INDIA: TWA 200 PPM (590 MG/M<sup>3</sup>), STEL 300 PPM (885 MG/M<sup>3</sup>), JAN1993

OEL-JAPAN: OEL 200 PPM (590 MG/M<sup>3</sup>), JAN1999

OEL-NORWAY: TWA 75 PPM (220 MG/M<sup>3</sup>), JAN1999

OEL-THE PHILIPPINES: TWA 200 PPM (590 MG/M<sup>3</sup>), JAN1993

OEL-POLAND: MAC(TWA) 200 MG/M<sup>3</sup>, MAC(STEL) 850 MG/M<sup>3</sup>, JAN1999

OEL-RUSSIA: TWA 200 PPM, STEL 200 MG/M<sup>3</sup>, JAN1993

OEL-SWEDEN: NGV 50 PPM (150 MG/M<sup>3</sup>), KTV 100 PPM (300 MG/M<sup>3</sup>), JAN1999

OEL-SWITZERLAND: MAK-W 200 PPM (590 MG/M<sup>3</sup>), KZG-V 400 PPM (1180 MG/M<sup>3</sup>), JAN1999

OEL-TURKEY: TWA 200 PPM (590 MG/M<sup>3</sup>), JAN1993

OEL-UNITED KINGDOM: TWA 200 PPM (600 MG/M<sup>3</sup>), STE; 300 PPM, SKIN, SPE2000

OEL IN ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV;

OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV

NIOSH REL TO METHYL ETHYL KETONE-AIR:10H TWA 200 PPM;STEL 300 PPM

NIOSH\* DHHS #92-100,1992  
NOHS 1974: HZD 13980; NIS 319; TNF 64013; NOS 177; TNE 801382  
NOES 1983: HZD 13980; NIS 318; TNF 87227; NOS 208; TNE 1447456; TFE 245372  
EPA GENETOX PROGRAM 1988, INCONCLUSIVE: B SUBTILIS REC ASSAY  
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY  
EPA TSCA 8(A) PRELIMINARY ASSESSMENT INFORMATION, FINAL RULE  
FEREAC 47,26992,82  
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES ON EPA IRIS  
DATABASE  
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001  
NIOSH ANALYTICAL METHOD, 1994: METHYL ETHYL KETONE, 2500; IN BLOOD,  
8002  
NIOSH ANALYTICAL METHOD, 1996: VOLATILE ORGANIC COMPOUND, 2549  
OSHA ANALYTICAL METHOD #16

U.S. INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING  
REQUIREMENTS.