



SIGMA-ALDRICH

SIGMA CHEMICAL COMPANY
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DATE 11/12/99
CUST#: 0-494-87708
PO#: 89779

M A T E R I A L S A F E T Y D A T A S H E E T PAGE 1

SECTION 1. - - - - - CHEMICAL IDENTIFICATION - - - - -

CATALOG #: A1010
NAME: ARSENIC(III) OXIDE

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -

CAS #: 1327-53-3
MF: AS203
EC NO: 215-481-4

SYNONYMS

ACIDE ARSENIQUEUX (FRENCH) * ANHYDRIDE ARSENIQUEUX (FRENCH) * ARSENIC
BLANC (FRENCH) * ARSENIC OXIDE * ARSENIC(III) OXIDE * ARSENIC
SESQUIOXIDE * ARSENIC TRIOXIDE (ACGIH) * ARSENICUM ALBUM * ARSENIGEN
SAURE (GERMAN) * ARSENIOS ACID * ARSENIOS OXIDE * ARSENIOS
TRIOXIDE * ARSENITE * ARSENOHITE * ARSENOUS ACID * ARSENOUS ACID
ANHYDRIDE * ARSENOUS ANHYDRIDE * ARSENOUS OXIDE * ARSENOUS OXIDE
ANHYDRIDE * ARSENTRIOXIDE * ARSODENT * CLAUDELITE * CLAUDETITE *
CRUDE ARSENIC * DIARSENIC TRIOXIDE * RCRA WASTE NUMBER P012 * WHITE
ARSENIC *

SECTION 3. - - - - - HAZARDS IDENTIFICATION - - - - -

LABEL PRECAUTIONARY STATEMENTS

HIGHLY TOXIC (USA)
VERY TOXIC (EU)
MAY CAUSE CANCER.
VERY TOXIC IF SWALLOWED.
TOXIC BY INHALATION AND IN CONTACT WITH SKIN.
CAUSES BURNS.
SENSITIZER.
TARGET ORGAN(S):
G.I. SYSTEM
HEART
AVOID EXPOSURE - OBTAIN SPECIAL INSTRUCTIONS BEFORE USE.
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE
IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE
PROTECTION.
DO NOT BREATHE DUST.

SECTION 4. - - - - - FIRST-AID MEASURES - - - - -

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS
AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED
CLOTHING AND SHOES.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL
RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
ASSURE ADEQUATE FLUSHING OF THE EYES BY SEPARATING THE EYELIDS

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M A T E R I A L S A F E T Y D A T A S H E E T P A G E 2

CATALOG #: A1010
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WITH FINGERS.

SECTION 5. - - - - - FIRE FIGHTING MEASURES - - - - -

EXTINGUISHING MEDIA
NONCOMBUSTIBLE.
USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.

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

UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. - - - - - ACCIDENTAL RELEASE MEASURES - - - - -

EVACUATE AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY
RUBBER GLOVES.
WEAR DISPOSABLE COVERALLS AND DISCARD THEM AFTER USE.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.

SECTION 7. - - - - - HANDLING AND STORAGE - - - - -

REFER TO SECTION 8.

SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION - - - - -

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT
GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.
SAFETY SHOWER AND EYE BATH.
USE ONLY IN A CHEMICAL FUME HOOD.
DO NOT BREATHE DUST.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
WASH THOROUGHLY AFTER HANDLING.
KEEP AWAY FROM COMBUSTIBLE MATERIALS, HEAT, SPARKS, AND OPEN FLAME.
STORE IN A COOL DRY PLACE.

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

PHYSICAL PROPERTIES
SPECIFIC GRAVITY: 3.738

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

CONDITIONS TO AVOID
MAY DECOMPOSE ON EXPOSURE TO MOIST AIR OR WATER.

INCOMPATIBILITIES
HEAT

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M A T E R I A L S A F E T Y D A T A S H E E T P A G E 3

CATALOG #: A1010
NAME: ARSENIC(III) OXIDE

OXIDIZING AGENTS
METALS

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
ARSENIC OXIDES

HAZARDOUS POLYMERIZATION
WILL NOT OCCUR.

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

ACUTE EFFECTS

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED. MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT, EYES AND SKIN. INHALATION MAY RESULT IN SPASM, INFLAMMATION AND EDEMA OF THE LARYNX AND BRONCHI, CHEMICAL PNEUMONITIS AND PULMONARY EDEMA. SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING, WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA AND VOMITING.

PROLONGED EXPOSURE TO ARSENIC COMPOUNDS CAN CAUSE EXFOLIATION AND PIGMENTATION OF SKIN, HERPES, INFLAMMATION OF NERVES AND NASAL SEPTUM ULCERATION.

DRY MOUTH, A METALLIC TASTE, DROWSINESS, LOSS OF APPETITE, EXCESSIVE SALIVATION, NAUSEA, VOMITING AND A FOUL, GARLIC-LIKE BREATH. MAY BE FATAL IF SWALLOWED.

HARMFUL IF INHALED OR ABSORBED THROUGH SKIN.

MAY CAUSE ALLERGIC RESPIRATORY REACTION.

EXPOSURE TO ARSENIC COMPOUNDS CAN CAUSE BURNING AND DRYNESS OF THE ORAL AND NASAL CAVITIES, MUSCLE SPASMS, IRRITATION OF THE GASTROINTESTINAL TRACT, NAUSEA, VOMITING AND DIARRHEA WHICH CAN PROGRESS TO SHOCK AND DEATH.

CHRONIC EFFECTS

THIS IS OR CONTAINS A COMPONENT THAT HAS BEEN REPORTED TO BE CARCINOGENIC BASED ON ITS IARC, OSHA, ACGIH, NTP OR EPA CLASSIFICATION. TARGET ORGAN(S):

- G.I. SYSTEM
- HEART
- BRAIN
- KIDNEYS
- SKIN
- BONE MARROW
- PERIPHERAL NERVOUS SYSTEM

RTECS #: CG3325000
ARSENIC TRIOXIDE

TOXICITY DATA

ORL-MAN LDLO: 29 MG/KG
ORL-MAN LDLO: 286 MG/KG

AEMED3 16,702,1987
JTCTDW 29,45,1991

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M A T E R I A L S A F E T Y D A T A S H E E T PAGE 4

CATALOG #: A1010
NAME: ARSENIC(III) OXIDE

ORL-HMN LDLO:1429 UG/KG	YKYUA6 31,1247,1980
ORL-MAN LDLO:2857 MG/KG	JTCTDW 29,131,1991
UNR-MAN LDLO:2941 UG/KG	85DCAI 2,73,1970
ORL-RAT LD50:14600 UG/KG	GISAAA 52(1),21,1987
IPR-RAT LD50:871 MG/KG	GTPZAB 19(3),30,1975
ORL-MUS LD50:31500 UG/KG	CHYCDW 14,86,1980
SCU-MUS LD50:9800 UG/KG	PSEBAA 78,392,1951
IVN-MUS LD50:10700 UG/KG	PSEBAA 78,392,1951
ORL-RBT LD50:20190 UG/KG	CHYCDW 22,284,1988

TARGET ORGAN DATA

SENSE ORGANS AND SPECIAL SENSES (VISUAL FIELD CHANGES)
BEHAVIORAL (SLEEP)
BEHAVIORAL (MUSCLE WEAKNESS)
CARDIAC (ARRYTHMIAS)
LUNGS, THORAX OR RESPIRATION (OTHER CHANGES)
LUNGS, THORAX OR RESPIRATION (TUMORS)
GASTROINTESTINAL (HYPERMOTILITY, DIARRHEA)
LIVER (LIVER FUNCTION TESTS IMPAIRED)
BLOOD (OTHER CHANGES)
MUSCULO-SKELETAL (OTHER CHANGES)
SKIN AND APPENDAGES (CORROSIVE)
EFFECTS ON FERTILITY (LITTER SIZE)
EFFECTS ON EMBRYO OR FETUS (CYTOLOGICAL CHANGES)
EFFECTS ON EMBRYO OR FETUS (FETOTOXICITY)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (CENTRAL NERVOUS SYSTEM)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)
SPECIFIC DEVELOPMENTAL ABNORMALITIES (IMMUNE AND RETICULOENDOTHELIAL SYST
EFFECTS ON NEWBORN (APGAR SCORE)
EFFECTS ON NEWBORN (OTHER NEONATAL MEASURES OR EFFECTS)
EFFECTS ON NEWBORN (BEHAVIORAL)
TUMORIGENIC (NEOPLASTIC BY RTECS CRITERIA)
TUMORIGENIC (EQUIVOCAL TUMORIGENIC AGENT BY RTECS CRITERIA)
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 - - - - -
BURY IN A LANDFILL SITE APPROVED FOR THE DISPOSAL OF CHEMICAL
AND HAZARDOUS WASTES.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

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

SECTION 15. - - - - - REGULATORY INFORMATION - - - - -
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M A T E R I A L S A F E T Y D A T A S H E E T P A G E 5

CATALOG #: A1010
NAME: ARSENIC(III) OXIDE

EUROPEAN INFORMATION

EC INDEX NO: 033-003-00-0
VERY TOXIC
R 45
MAY CAUSE CANCER.
R 28
VERY TOXIC IF SWALLOWED.
R 34
CAUSES BURNS.
S 53
AVOID EXPOSURE - OBTAIN SPECIAL INSTRUCTIONS BEFORE USE.
S 45
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK
IARC CANCER REVIEW:HUMAN LIMITED EVIDENCE IMEMDT 2,48,1973
IARC CANCER REVIEW:HUMAN SUFFICIENT EVIDENCE IMEMDT 23,39,1980
IARC CANCER REVIEW:ANIMAL LIMITED EVIDENCE IMSUDL 7,100,1987
IARC CANCER REVIEW:ANIMAL INADEQUATE EVIDENCE IMEMDT 2,48,1973
IARC CANCER REVIEW:ANIMAL INADEQUATE EVIDENCE IMEMDT 23,39,1980
IARC CANCER REVIEW:GROUP 1 IMSUDL 7,100,1987
EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION
FEREAC 54,7740,1989
OSHA-CANCER HAZARD
CFRGR 29,1910.1018,1987
OEL-AUSTRALIA:CARCINOGEN JAN 1993
OEL-AUSTRIA: CARCINOGEN, JAN1999
OEL-BELGIUM;CARCINOGEN JAN 1993
OEL-FINLAND;CARCINOGEN JAN 1993
OEL-DENMARK: TWA 0.05 MG(AS)/M3, JAN1999
OEL-GERMANY;CARCINOGEN JAN 1993
OEL-JAPAN:STEL 0.5 PPM;CARCINOGEN JAN 1993
OEL-JAPAN: GROUP 1 CARCINOGEN, JAN1999
OEL-THE PHILIPPINES:TWA 0.1 MG/M3;CARCINOGEN JAN 1993
OEL-SWITZERLAND:TWA 0.15 MG/M3 JAN 1993
OEL-UNITED KINGDOM:TWA 0.1 MG/M3 JAN 1993
OEL-POLAND: TWA 0.01 MG(AS)/M3, JAN1999
OEL-SWEDEN: TWA 0.03 MG(AS)/M3, CARCINOGEN, JAN1999
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NIOSH REL TO ARSENIC, INORGANIC-AIR:CA CL 0.002 MG(AS)/M3/15M
NIOSH* DHHS #92-100,1992
NOHS 1974: HZD 07570; NIS 6; TNF 1284; NOS 6; TNE 3980
NOES 1983: HZD 07570; NIS 8; TNF 107; NOS 16; TNE 4657; TFE 2001
EPA GENETOX PROGRAM 1988, POSITIVE: B SUBTILIS REC ASSAY
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JUNE 1999
NIOSH CURRENT INTELLIGENCE BULLETIN 14, 1976

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M A T E R I A L S A F E T Y D A T A S H E E T P A G E 6

CATALOG #: A1010
NAME: ARSENIC(III) OXIDE

NIOSH ANALYTICAL METHOD, 1994: ARSENIC TRIOXIDE AS AS, 7901
NTP 8TH ANNUAL REPORT ON CARCINOGENS, 1998: KNOWN TO BE HUMAN
CARCINOGEN
NTP CARCINOGENESIS STUDIES; SELECTED, MAY 1999

U.S. INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.
CALIFORNIA PROPOSITION 65:
THIS PRODUCT IS OR CONTAINS CHEMICAL(S) KNOWN TO THE STATE OF
CALIFORNIA TO CAUSE CANCER.

SECTION 16. - - - - - OTHER INFORMATION - - - - -

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO
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