

ROYAL OAK MINES INC.  
NWT DIVISION - GIANT MINE

Mill Fax No.: (403) 920-2627  
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FAX TRANSMISSION

DATE: Mar 3 97

DESTINATION: \_\_\_\_\_

ATTENTION: GUY TOMBS-

FAX NO.: 514 866 8519

SENT BY: KENT MORION

NO. OF PAGES: 11.  
(Including Cover Sheet)

COMMENTS:

Please find the attached  
MSDS for Arsenic Trisulphide  
as discussed with our Sue  
Lendrum -

gms

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\* M S D S \*  
\*  
\* Canadian Centre for Occupational Health and Safety \*  
\* \* \* \* \* Issue : 95-2 (May, 1995) \*

\*\*\* IDENTIFICATION \*\*\*

MSDS RECORD NUMBER : 865402  
PRODUCT NAME(S) : ARSENIC TRIOXIDE  
PRODUCT IDENTIFICATION : J.T. BAKER MSDS NUMBER: A7512  
CAS NO.: 1327-53-3  
PRODUCT CODES: 0062 0061  
DATE OF MSDS : 1994-01-04

\*\*\* MANUFACTURER INFORMATION \*\*\*

MANUFACTURER : J T BAKER INC  
ADDRESS : 222 RED SCHOOL LANE  
PHILLIPSBURG NEW JERSEY  
U.S.A. 08865  
EMERGENCY TELEPHONE NO. : 908-859-2151 (24-HOURS) 800-424-9300 (CHEMTREC)  
800-424-8802 (NATIONAL RESPONSE CENTER)

\*\*\* MATERIAL SAFETY DATA \*\*\*

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CHEMTREC # (800) 424-9300 -- NATIONAL RESPONSE CENTER # (800) 424-8802

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EFFECTIVE: 01/04/94

ARSENIC TRIOXIDE

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

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SECTION I - PRODUCT IDENTIFICATION

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PRODUCT NAME: ARSENIC TRIOXIDE  
COMMON SYNONYMS: ARSENIC OXIDE; ARSENIC (III) OXIDE; ARSENOUS TRIOXIDE;  
ARSENOUS ACID  
CHEMICAL FAMILY: ARSENIC COMPOUNDS  
FORMULA: AS2O3  
FORMULA WT.: 197.84  
CAS NO.: 1327-53-3  
NIOSH/RTECS NO.: CG3325000  
PRODUCT USE: LABORATORY REAGENT  
PRODUCT CODES: 0062,0061

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PRECAUTIONARY LABELING

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BAKER SAF-T-DATA\* SYSTEM

HEALTH	-	4	EXTREME (CANCER CAUSING)
FLAMMABILITY	-	0	NONE
REACTIVITY	-	1	SLIGHT
CONTACT	-	1	SLIGHT

LABORATORY PROTECTIVE EQUIPMENT

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GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES

U.S. PRECAUTIONARY LABELING

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POISON DANGER

CAUSES IRRITATION. HARMFUL IF ABSORBED THROUGH SKIN. MAY BE FATAL IF SWALLOWED OR INHALED. CAUTION: CONTAINS INORGANIC ARSENIC, CANCER HAZARD. DO NOT GET IN EYES, ON SKIN, ON CLOTHING. DO NOT BREATHE DUST. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING.

INTERNATIONAL LABELING

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TOXIC BY INHALATION AND IF SWALLOWED. MAY CAUSE CANCER. KEEP LOCKED UP AND OUT OF REACH OF CHILDREN. WHEN USING DO NOT EAT, DRINK OR SMOKE. AFTER CONTACT WITH SKIN, WASH IMMEDIATELY WITH PLENTY OF SOAP AND WATER. IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE (SHOW THE LABEL WHERE POSSIBLE). AVOID EXPOSURE - OBTAIN SPECIAL INSTRUCTIONS BEFORE USE.

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PRECAUTIONARY LABELING (CONTINUED)

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SAF-T-DATA\* STORAGE COLOR CODE: BLUE (HEALTH)

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SECTION II - COMPONENTS

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COMPONENT	CAS NO.	WEIGHT %	OSHA/PEL	ACGIH/TLV
ARSENIC TRIOXIDE	1327-53-3	99-100	0.01 MG/M	N/E

PEL IS FOR ARSENIC AND COMPOUNDS, AS AS.

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SECTION III - PHYSICAL DATA

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BOILING POINT: N/A

VAPOR PRESSURE (MMHG): N/A

MELTING POINT: 193 C (379 F)  
(AT 760 MM HG)

VAPOR DENSITY (AIR=1): N/A

SPECIFIC GRAVITY: 3.87  
(H2O=1)

EVAPORATION RATE: N/A

SOLUBILITY(H2O): SLIGHT (0.1-1%)

% VOLATILES BY VOLUME: 0  
(21 C)

PH: N/A

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

PHYSICAL STATE: SOLID

COEFFICIENT WATER/OIL DISTRIBUTION: N/A

APPEARANCE & ODOR: WHITE POWDER. ODORLESS.

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SECTION IV - FIRE AND EXPLOSION HAZARD DATA

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FLASH POINT (CLOSED CUP): N/A

AUTOIGNITION TEMPERATURE: N/A

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SECTION IV - FIRE AND EXPLOSION HAZARD DATA (CONTINUED)

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FLAMMABLE LIMITS: UPPER - N/A LOWER - N/A

FIRE EXTINGUISHING MEDIA

USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.

SPECIAL FIRE-FIGHTING PROCEDURES

FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE.

UNUSUAL FIRE & EXPLOSION HAZARDS

NONE IDENTIFIED.

TOXIC GASES PRODUCED

ARSINE

EXPLOSION DATA-SENSITIVITY TO MECHANICAL IMPACT

NONE IDENTIFIED.

EXPLOSION DATA-SENSITIVITY TO STATIC DISCHARGE

NONE IDENTIFIED.

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SECTION V - HEALTH HAZARD DATA

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THRESHOLD LIMIT VALUE (TLV/TWA): NOT ESTABLISHED

SHORT-TERM EXPOSURE LIMIT (STEL): NOT ESTABLISHED

PERMISSIBLE EXPOSURE LIMIT (PEL): 0.01 MG/M

PEL IS FOR ARSENIC AND COMPOUNDS, AS AS.

TOXICITY OF COMPONENTS

ORAL RAT LD50 FOR ARSENIC TRIOXIDE 15.1 MG/KG  
ORAL MOUSE LD50 FOR ARSENIC TRIOXIDE 39.4 MG/KG  
CARCINOGENICITY: NTP: YES IARC: YES Z LIST: YES OSHA REG: YES

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SECTION V - HEALTH HAZARD DATA (CONTINUED)

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CARCINOGENICITY

THIS SUBSTANCE IS LISTED AS A NTP HUMAN CARCINOGEN AND AN IARC HUMAN CARCINOGEN (GROUP 1).

REPRODUCTIVE EFFECTS

NONE IDENTIFIED.

EFFECTS OF OVEREXPOSURE

INHALATION: HEADACHE, COUGHING, DIFFICULT BREATHING, CHEST PAINS, SEVERE LUNG IRRITATION, PULMONARY EDEMA, AND MAY BE FATAL.

SKIN CONTACT: IRRITATION, PROLONGED CONTACT MAY CAUSE DERMATITIS

EYE CONTACT: IRRITATION

SKIN ABSORPTION: NONE IDENTIFIED

INGESTION: NAUSEA, VOMITING, GASTROINTESTINAL IRRITATION, CONVULSIONS, PARALYSIS, BURNS TO MOUTH AND THROAT, AND MAY BE FATAL.

CHRONIC EFFECTS: DAMAGE TO LIVER, KIDNEYS, LUNGS, BLOOD, CENTRAL NERVOUS SYSTEM

TARGET ORGANS

LIVER, KIDNEYS, SKIN, RESPIRATORY SYSTEM, LUNGS, CENTRAL NERVOUS SYSTEM, LYMPHATIC SYSTEM, BLOOD

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

NONE IDENTIFIED

PRIMARY ROUTES OF ENTRY

INHALATION, ABSORPTION, EYE CONTACT, SKIN CONTACT, INGESTION

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SECTION V - HEALTH HAZARD DATA (CONTINUED)

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EMERGENCY AND FIRST AID PROCEDURES

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INGESTION: CALL A PHYSICIAN. IF SWALLOWED, IF CONSCIOUS, IMMEDIATELY INDUCE VOMITING.

INHALATION: IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. PROMPT ACTION IS ESSENTIAL.

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.

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

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

EXTREMELY HAZARDOUS SUBSTANCE: YES CONTAINS ARSENOUS OXIDE (RQ = 5,000 LBS, TPQ = 100/10,000 LBS)

CERCLA HAZARDOUS SUBSTANCE: YES CONTAINS ARSENOUS TRIOXIDE (RQ = 5000 LBS)

SARA 313 TOXIC CHEMICALS: YES CONTAINS ARSENIC

GENERIC CLASS: GENERIC CLASS REMOVED FROM CFR: 7/1/91

TSCA INVENTORY: YES

STATE LISTS: FOR PRODUCTS SOLD IN THE STATE OF CALIFORNIA, THE STATE REQUIRES THAT WE PROVIDE TO USERS AND THEIR EMPLOYEES THE FOLLOWING MESSAGE: WARNING: THIS PRODUCT IS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

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SECTION VI - REACTIVITY DATA

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SECTION IX - STORAGE AND HANDLING PRECAUTIONS

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SAF-T-DATA\* STORAGE COLOR CODE: BLUE (HEALTH)

STORAGE REQUIREMENTS

KEEP CONTAINER TIGHTLY CLOSED. STORE IN SECURE POISON AREA.

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SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

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SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION (CONTINUED)

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DOMESTIC (D.O.T.)

PROPER SHIPPING NAME: ARSENIC TRIOXIDE

HAZARD CLASS: 6.1

UN/NA: UN1561      REPORTABLE QUANTITY: 1      LBS.      PACKAGING GROUP: II

LABELS: 6 POISON

REGULATORY REFERENCES: 49CFR 172.101

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME: ARSENIC TRIOXIDE

HAZARD CLASS: 6.1

UN: UN1561      MARINE POLLUTANTS: YES

LABELS: 6 POISON

REGULATORY REFERENCES: 49CFR PART 176; IMDG CODE

I.M.O. PAGE: 6078

PACKAGING GROUP: II

AIR (I.C.A.O.)



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STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: NONE DOCUMENTED

INCOMPATIBLES: STRONG OXIDIZING AGENTS, CHEMICALLY ACTIVE METALS,  
ALUMINUM, STRONG ACIDS, STRONG BASES

DECOMPOSITION PRODUCTS: ARSINE

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SECTION VII - SPILL & DISPOSAL PROCEDURES

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STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE

WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. WITH  
CLEAN SHOVEL, CAREFULLY PLACE MATERIAL INTO CLEAN, DRY CONTAINER AND  
COVER; REMOVE FROM AREA. FLUSH SPILL AREA WITH WATER.

DISPOSAL PROCEDURE

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

EPA HAZARDOUS WASTE NUMBER: P012 (ACUTE HAZARDOUS WASTE)

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SECTION VIII - INDUSTRIAL PROTECTIVE EQUIPMENT

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VENTILATION:

USE ADEQUATE GENERAL OR LOCAL EXHAUST VENTILATION TO  
KEEP FUME OR DUST LEVELS AS LOW AS POSSIBLE.

RESPIRATORY PROTECTION: NONE REQUIRED WHERE ADEQUATE VENTILATION CONDITIONS  
EXIST. IF AIRBORNE CONCENTRATION IS HIGH, A  
HIGH-EFFICIENCY PARTICULATE RESPIRATOR IS RECOMMENDED  
IF CONCENTRATION EXCEEDS CAPACITY OF RESPIRATOR, A  
SELF-CONTAINED BREATHING APPARATUS IS ADVISED.

EYE/SKIN PROTECTION:

SAFETY GOGGLES, UNIFORM, APRON, PROPER GLOVES ARE  
RECOMMENDED.

PROPER SHIPPING NAME: ARSENIC TRIOXIDE

HAZARD CLASS: 6.1

UN: UN1561

PACKAGING GROUP: II

LABELS: 6 POISON

REGULATORY REFERENCES: 49CFR PART 175; ICAO=== WE BELIEVE THE TRANSPORTATION DATA AND REFERENCES CONTAINED HEREIN TO BE FACTUAL AND THE OPINION OF QUALIFIED EXPERTS. THE DATA IS MEANT AS A GUIDE TO THE OVERALL CLASSIFICATION OF THE PRODUCT AND IS NOT PACKAGE SIZE SPECIFIC, NOR SHOULD IT BE TAKEN AS A WARRANTY OR REPRESENTATION FOR WHICH THE COMPANY ASSUMES LEGAL RESPONSIBILITY.=== THE INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION, INVESTIGATION, AND VERIFICATION. ANY USE OF THE INFORMATION MUST BE DETERMINED BY THE USER TO BE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS. SEE SHIPPER REQUIREMENTS 49CFR 171.2, CERTIFICATION 172.204, AND EMPLOYEE TRAINING 4 CFR 173.1(B).

U.S. CUSTOMS HARMONIZATION NUMBER: 28259000000

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NOTE: WHEN HANDLING LIQUID PRODUCTS, SECONDARY PROTECTIVE CONTAINERS MUST BE USED FOR CARRYING.

-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 EVEN DEATH, ESPECIALLY IF IMPROPERLY HANDLED OR THE KNOWN DANGERS OF USE ARE NOT HEEDDED. READ ALL PRECAUTIONARY INFORMATION. AS NEW DOCUMENTED GENERAL SAFETY INFORMATION BECOMES AVAILABLE, BAKER WILL PERIODICALLY REVISE THIS MATERIAL SAFETY DATA SHEET.

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APPROVED BY QUALITY ASSURANCE DEPARTMENT.

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