MATERIAL SAFETY DATA SHEET (MSDS)

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NAME USED ON LABEL: "FIRESHIELD®-H", "FIRESHIELD®-L", "FIRESHIELD®-ULTRAFINE®-II", "HPM" (PERCENT CHLORINATED PARAFIN, "CP", IS MARKED ON PACKAGES)
CHEMICAL NAME: ANTIMONY TRIOXIDE (ANTIMONY OXIDE)
CHEMICAL FAMILY: ANTIMONY COMPOUND FORMULA: Sb_2O_3
UN IDENTIFICATION NUMBER: UN 3077

PACKAGE SIZE: 250 LBS. OR LESS
DOT SHIPPING NAME: ANTIMONY TRIOXIDE (ANTIMONY OXIDE)
DOT HAZARD CLASS: N/A

PACKAGE SIZE: 251-999 LBS.
DOT SHIPPING NAME: RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (ARSENIC TRIOXIDE), 9, UN3077, PGIII
DOT HAZARD CLASS: 9

PACKAGE SIZE: 1,000 LBS. AND GREATER
DOT SHIPPING NAME: RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (ANTIMONY TRIOXIDE, ARSENIC TRIOXIDE), 9, UN3077, PGIII
DOT HAZARD CLASS: 9

PER IMO (INTERNATIONAL MARITIME ORGANIZATION), ANTIMONY OXIDES CONTAINING NOT MORE THAN 0.5% ARSENIC CALCULATED ON THE TOTAL MASS, DO NOT NEED TO BE CLASSIFIED ACCORDING TO THE IMDG CODE.

PER IATA 4.5 SPECIAL PROVISIONS, SECTION A.12: ANTIMONY OXIDES WHICH DO NOT CONTAIN MORE THAN 0.5% OF ARSENIC CALCULATED ON THE TOTAL MASS ARE CONSIDERED NON-DANGEROUS.

HARMONIZED TARIFF SCHEDULED NUMBER FOR ANTIMONY OXIDE IS 2825.80.00.00

INGREDIENTS

IDENTITY	CAS NO.	%	ACGIH TLV	ACGIH STEL	OSHA PEL
Antimony Oxide	1309-64-4	>99	0.5mg/m^3 as Sb	NONE	0.5mg/m^3 as Sb
Arsenic	7440-38-2	<0.4	0.2mg/m^3 as As	NONE	0.01mg/m^3 as As
Chlorinated Parafin	63449-39-8	<5	N/A	NONE	N/A

MARKETED BY
HARWICK STANDARD DISTRIBUTION CORPORATION
60 S. Seiberling Street • Akron, Ohio 44305

Issued: 05/24/89
Revised: 09/20/95

PHYSICAL DATA

BOILING POINT @ 760 mm HG:	2597°F
VAPOR DENSITY (AIR =1):	NOT APPLICABLE
SPECIFIC GRAVITY (H_20=1):	5
Ph OF 10% SOLUTION IN WATER:	3-7
FREEZING/MELTING POINT:	NOT APPLICABLE
SOLUBILITY (WEIGHT % IN WATER):	SLIGHT
BULK DENSITY:	40-75 lbs/sq.ft.^{3}
VOLUME % VOLATILE:	NOT APPLICABLE
VAPOR PRESSURE:	NOT APPLICABLE
EVAPORATION RATE:	NOT APPLICABLE
HEAT OF SOLUTION:	NOT APPLICABLE
APPEARANCE AND ODOR:	FINE WHITE POWDER, ODORLESS

FIRE AND EXPLOSION DATA

FLASH POINT:	NONE
FLAMMABLE LIMITS IN AIR (% BY VOLUME):	NOT APPLICABLE
EXTINGUISHING MEDIA:	NOT APPLICABLE
SPECIAL FIRE FIGHTING PROCEDURES:	NOT APPLICABLE
UNUSUAL FIRE AND EXPLOSION HAZARDS:	NOT APPLICABLE

HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LIMITS (TLV): The permissible exposure limit for antimony is 0.5mg/m^3 as Sb-8 hour TWA, OSHA 29CFR 1910.1000 (May 28, 1975).

TOXICITY DATA

LC-50 INHALATION: SEE "EFFECTS OF OVEREXPOSURE" SECTION.
LD-50 DERMAL: (RABBITS) > 2g/kg
LD-50 INGESTION: (RATS) > 34.6g/kg
FISH, LC-50 (LETHAL CONCENTRATION): UNKNOWN
HUMAN EXPOSURE INFORMATION/DATA: TLV-TWA for As is .2mg/m^3. See "EFFECTS OF OVEREXPOSURE."

CLASSIFICATION (POISON, IRRITANT, ETC.)

INHALATION: SEE "EFFECTS OF OVEREXPOSURE" SECTION.
SKIN/EYE: MODERATELY IRRITATING TO SKIN AND EYES.
INGESTION: NOT SIGNIFICANTLY TOXIC.
AQUATIC: UNKNOWN.

REACTIVITY DATA

STABILITY:	STABLE
CONDITIONS TO AVOID:	NONE KNOWN
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR
INCOMPATIBILITY (MATERIALS TO AVOID):	NONE KNOWN
HAZARDOUS DECOMPOSITION PRODUCTS:	NOT APPLICABLE

EFFECTS OF OVEREXPOSURE

THIS SECTION COVERS THE EFFECTS OF OVEREXPOSURE FOR INHALATION, EYE/SKIN CONTACT, INGESTION AND OTHER TYPES OF OVEREXPOSURE INFORMATION IN THE ORDER OF THE MOST HAZARDOUS AND THE MOST LIKELY ROUTE OF OVEREXPOSURE.

INHALATION

ANIMAL TESTS (RATS) @ 2.7MG/L (2,760MG/M^3) EXPOSURE FOR FOUR HOURS PRODUCED NO DEATHS. GROSS PATHOLOGICAL ALTERATIONS FOUND WERE SLIGHT FOCAL DISCOLORATION AND SLIGHT PUFFY WHITE FOCI IN THE LUNGS.

ACUTE EFFECTS

INHALATION: ANTIMONY OXIDE INHALATION CAN CAUSE IRRITATION TO THE RESPIRATORY TRACT AND MUCOUS MEMBRANES.

EYE CONTACT: ANTIMONY OXIDE WAS FOUND TO BE SLIGHTLY TO MODERATELY IRRITATING. THEREFORE, EYE CONTACT CAN CAUSE IRRITATION AND PAIN.

SKIN CONTACT: ANTIMONY OXIDE WAS FOUND TO BE MINIMALLY IRRITATING TO THE SKIN WHEN TESTED ON LABORATORY ANIMALS. HOWEVER, HUMAN EXPERIENCE INDICATES THAT PROLONGED OR REPEATED CONTACT WITH SKIN CAN RESULT IN IRRITATION AND SKIN LESIONS, SOMETIMES REFERRED TO AS "ANTIMONY FLEAS." SKIN IRRITATION IS WORSE WHEN THE SKIN SURFACE IS MOIST AS FOUND WITH PERSPIRATION.

CHRONIC EFFECTS

THE PRIMARY ROUTE OF CHRONIC OVEREXPOSURE TO ANTIMONY OXIDE IS BY INHALATION. VARIOUS STUDIES OF HUMAN OVEREXPOSURE TO VARIOUS FORMS OF ANTIMONY IN SMELTERS REPORTED EFFECTS PRIMARILY INCLUDING DERMATITIS, RHINITIS, INFLAMMATION OF THE UPPER AND LOWER RESPIRATORY TRACT (INCLUDING PNEUMONITIS), WITH A FEW CASES OF GASTRITIS, CONJUNCTIVITIS, AND SEPTAL PERFORATIONS.

STUDIES ON ANIMALS EXPOSED TO ANTIMONY TRISULFIDE HAVE BEEN REPORTED TO CAUSE CHANGES IN THE HEART (EKGS); HOWEVER, NO SUCH REPORTS HAVE BEEN REVIEWED TO SUGGEST SIMILAR ALTERATIONS IN EKG FROM EXPOSURE TO ANTIMONY TRIOXIDE.

PRELIMINARY DATA FROM TWO INDEPENDENT CHRONIC RAT INHALATION STUDIES REVEALED ANTIMONY OXIDE INDUCED BOTH BENIGN AND MALIGNANT LUNG TUMORS IN ANIMALS EXPOSED FOR AT LEAST 12 MONTHS TO CONCENTRATIONS AT 4.2 AND 50MG/M^3. ANIMALS EXPOSED TO 1.6MG/M^3 HAVE NOT SHOWN A CARCINOGENIC RESPONSE TO DATE. THE TUMORS REPRESENTED AN UNUSUAL HISTOLOGICAL APPEARANCE FROM LESIONS PREVIOUSLY DESCRIBED IN RAT LUNGS. A HIGH INCIDENCE OF LUNG FIBROSIS WAS ALSO ASSOCIATED WITH EXPOSURE.

ANTIMONY OXIDE AND ANTIMONY COMPOUNDS SHOULD BE HANDLED AS SUSPECT CARCINOGENS BECAUSE OF THESE FINDINGS. ANTIMONY OXIDE IS AN I.A.R.C. (GROUP IIB) SUSPECT CARCINOGEN AND ARSENIC IS AN OSHA CANCER HAZARD, AN NTP HUMAN CARCINOGEN, AND AN I.A.R.C. (GROUP I) HUMAN CARCINOGEN.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION:	REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN.
EYE OR SKIN CONTACT:	SKIN CONTACT-FLUSH SKIN WITH PLENTY OF WATER. IF IRRITATION OCCURS, CONSULT A PHYSICIAN. EYE CONTACT-FLUSH EYES THOROUGHLY WITH WATER FOR AT LEAST 15 MINUTES. CALL A PHYSICIAN.
INGESTION:	SWALLOWING-IF CONSCIOUS, DRINK A QUART OF WATER. THEN INDUCE VOMITING BY PLACING A FINGER FAR BACK IN THE THROAT. CALL A PHYSICIAN. IF VOMITING CANNOT BE INDUCED, TAKE IMMEDIATELY TO A PHYSICIAN OR A HOSPITAL. DO NOT INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED:	VACUUM ALL VISIBLE SPILLED MATERIAL AND PLACE IN CLOSED PLASTIC BAGS FOR DISPOSAL; THOROUGHLY FLUSH AREA OF SPILL WITH WATER. WATER FLUSH SHOULD BE USED ONLY AFTER ALL VISIBLE MATERIAL HAS BEEN VACUUMED. DO NOT FLUSH SPILLED MATERIAL TO SEWER.
WASTE DISPOSAL METHOD:	CARE MUST BE TAKEN WHEN USING OR DISPOSING OF CHEMICAL MATERIALS AND/OR THEIR CONTAINERS TO PREVENT ENVIRONMENTAL CONTAMINATION. IT IS YOUR DUTY TO DISPOSE OF THE CHEMICAL MATERIALS AND/OR THEIR CONTAINERS IN ACCORDANCE WITH THE CLEAR AIR ACT, THE CLEAN WATER ACT, THE RESOURCE CONSERVATION AND RECOVERY ACT AND ALL STATE AND LOCAL LAWS/REGULATIONS REGARDING DISPOSAL.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	NIOSH/MSHA APPROVED DUST RESPIRATOR. RESPIRATORY PROGRAM MUST BE IN ACCORDANCE WITH 29CFR 1910.134.
VENTILATION TYPE:	LOCAL EXHAUST-SUFFICIENT TO MAINTAIN EMPLOYEE EXPOSURE AS FAR BELOW OSHA PERMISSIBLE EXPOSURE LIMITS AS PRACTICAL.
EYE PROTECTION:	CHEMICAL SAFETY GOGGLES.
GLOVES:	RUBBER OR NEOPRENE.
OTHER PROTECTIVE EQUIPMENT:	LONG-SLEEVED SHIRT, EYE-WASH FOUNTAIN AND SAFETY SHOWER IN IMMEDIATE AREA. PERSONNEL PROTECTIVE CLOTHING AND USE OF EQUIPMENT MUST BE IN ACCORDANCE WITH 29CFR 1910.133.

SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORING:

1. WHEN HANDLING, WEAR LONG-SLEEVED SHIRT, RUBBER GLOVES AND CHEMICAL SAFETY GOGGLES.
2. WEAR RESPIRATORY PROTECTION WHERE POTENTIAL EXPOSURE TO DUST MAY OCCUR.
3. RESPIRATORY PROTECTION MUST BE NIOSH/MSHA-APPROVED FOR PROTECTION AGAINST DUST.
4. STORE IN A DRY, WELL-VENTILATED AREA.
5. DO NOT STORE IN OPEN, UNLABELED OR MISLABELED CONTAINERS.

ADDITIONAL INFORMATION

CLASSIFICATIONS SARA TITLE III

ACUTE HAZARD:	YES
CHRONIC HAZARD:	YES
PRESSURE HAZARD:	NO
REACTIVITY HAZARD:	NO
FIRE HAZARD:	NO

ADDITIONAL INFORMATION (continued)

RATINGS

HMIS FLAMM: 0
REACTIVITY: 0
HEALTH: 2*
PPE: SEE "SPECIAL PROJECTION INFORMATION" SECTION

* CHRONIC HEALTH HAZARD PER HMIS

NFPA FLAMMABILITY: 0
REACTIVITY: 0
HEALTH: 0

COMPONENTS OF THIS PRODUCT WHICH APPEAR IN THE INGREDIENTS SECTION OF THIS MSDS ARE IDENTIFIED BELOW IF THEY ARE PRESENT IN EXCESS OF DE MINIMUS REPORTING LEVELS. COMPONENTS WHICH ARE NOT REQUIRED TO BE IDENTIFIED BY SPECIFIC CHEMICAL NAME MAY HAVE A GENERIC DESCRIPTION.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCE(S): NONE

SARA TITLE III SECTION 313 TOXIC CHEMICALS: ANTIMONY OXIDE

STATE RIGHT-TO-KNOW

COMPONENTS OF THIS PRODUCT WHICH ARE SPECIFICALLY IDENTIFIED IN THE INGREDIENTS SECTION OF THIS MSDS MAY BE LISTED ON THE FOLLOWING:

1. PENNSYLVANIA HAZARDOUS SUBSTANCE LIST
2. MASSACHUSETTS HAZARDOUS SUBSTANCE LIST
3. NEW JERSEY HAZARDOUS SUBSTANCE LIST

CALIFORNIA PROPOSITION 65

1. THIS PRODUCT CONTAINS A CHEMICAL KNOWN BY THE STATE OF CALIFORNIA TO CAUSE CANCER.

TSCA INVENTORY

ANTIMONY OXIDE IS REPORTED IN EPA TSCA INVENTORY, 1980.

REFERENCES

1. Acute Toxicity Studies with Antimony Trioxide, Industrial Bio-Test Laboratories, Inc., Northbrook, Illinois, 60062, Keplinger, et al., Report Nos. T-2298 and A-2297, Nov/Dec, 1972.

2. Industrial Hygiene and Toxicology, Second Edition, Frank A. Patty, 1962.

3. Occupational Exposure to Antimony, NIOSH Criteria Document, U. S. Department of HEW, September, 1978.

4. WIL Research Laboratory, Study # WIL-1277-79, Acute Eye Irritation in Rabbits with Antimony Oxide, December 21, 1979.

5. Assessment of Carcinogenicity of Antimony Trioxide, Experimental Pathology Laboratory, Inc., Herndon, Virginia, August, 1980.