WV-0191 #155

MATERIAL SAFETY DATA SHEET

OCCUPATIONAL HEALTH SERVICES, INC.
400 PLAZA DRIVE
HARMON MEADOWS
SECAUCUS, NJ 07094
1-800-223-8978

EMERGENCY CONTACT:
JOHN S. BRANSFORD, JR. (615)292-1180

SUBSTANCE IDENTIFICATION

CAS-NUMBER 1332-21-4

SUBSTANCE: ASBESTOS

TRADE NAMES/SYNONYMS:
ASBESTOS FIBER; ASBESTOS FIBRE; CHRYSOLITE; CROCIDOLITE; ACTINOLITE; AMOSITE; ANTHOPHYLITE; TREMOLITE; OHS02110

CHEMICAL FAMILY:
FIBROUS SILICATES

CERCLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=0 REACTIVITY=0 PERSISTENCE=3
NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: ASBESTOS PERCENT: 100.0
FORMS MAY INCLUDE:

CHRYSOLITE
12001-29-5

CROCIDOLITE
12001-28-4

AMOSITE
12172-73-5

FROM: TLV for 1987-1988 (ACGIH)

Amosite 0.5 fiber/cc
Chrysotile 2 fibers/cc
Crocidolite 0.2 fiber/cc
Other forms 2.0 fibers/cc

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:
2.0 FIBERS (ALL ASBESTOS FORMS) LONGER THAN 5 UM/CC OSHA TWA;
10.0 FIBERS LONGER THAN 5 UM/CC OSHA CEILING;
0.5 FIBERS (AMOSITE) >5 UM/CC ACGIH TWA;
2.0 FIBERS (CHRYSOTILE) >5 UM/CC ACGIH TWA;
0.2 FIBERS (CROCIDOLITE) >5 UM/CC ACGIH TWA;
2.0 FIBERS (OTHER FORMS) >5 UM/CC ACGIH TWA;
100,000 FIBERS/M3 NIOSH RECOMMENDED TWA;
500,000 FIBERS/M3 NIOSH RECOMMENDED 15 MINUTE CEILING

PHYSICAL DATA

DESCRIPTION: COLOR AND COMPOSITION VARY WITH TYPE OF ASBESTOS AND AREA MINED. MAY BE WHITE, BROWN, OR BLUISH. BOILING POINT: 4046 F (2230 C)

MELTING POINT: 3134 F (1723 C) SPECIFIC GRAVITY: 2.5

PLAINTIFF'S EXHIBIT
UC-2291

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SOLUBILITY IN WATER: INSOLUBLE

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
NEGLIGIBLE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

FIREFIGHTING MEDIA:
DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR FOAM
(1984 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.3).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR ALCOHOL FOAM
(1984 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.3).

FIREFIGHTING:
NO ACUTE HAZARD. MOVE CONTAINER FROM FIRE AREA IF POSSIBLE. AVOID BREATHING VAPORS OR DUSTS; KEEP UPWIND.

TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49CFR172.101:
ORM-C

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49CFR172.101 AND 172.402:
NONE

TOXICITY

ASBESTOS: 1.2 FIBERS/CC/19 YEARS CONTINUOUS EXPOSURE INHALATION-HUMAN TCLO; MUTAGENIC DATA (RTEC); POSITIVE HUMAN CARCINOGEN (IARC, OSHA, NTP); POSITIVE ANIMAL CARCINOGEN (IARC).
CHRYSOLITE: 2.8 FIBERS/CC/5 YEARS INHALATION-HUMAN TCLO; 300 MG/KG INTRAPERITONEAL-RAT LDLO; MUTAGENIC DATA (RTEC); POSITIVE HUMAN CARCINOGEN (IARC, OSHA, NTP); POSITIVE ANIMAL CARCINOGEN (IARC).
CROCIDOLITE: 300 MG/KG INTRAPERITONEAL-RAT LDLO; MUTAGENIC DATA (RTEC); POSITIVE HUMAN CARCINOGEN (IARC, OSHA, NTP); POSITIVE ANIMAL CARCINOGEN (IARC).
AMOSITE: MUTAGENIC DATA (RTEC); POSITIVE HUMAN CARCINOGEN (IARC, OSHA, NTP); POSITIVE ANIMAL CARCINOGEN (IARC).
EXPOSURE TO CHRYSOTILE, AMOSITE, MIXTURES CONTAINING CROCIDOLITE, AND OTHER FORMS OF ASBESTOS HAS RESULTED IN A HIGH INCIDENCE OF LUNG CANCER, AND PLEURAL AND PERITONEAL MESOTHELIOMAS. GASTROINTESTINAL CANCERS WERE INCREASED IN WORKERS EXPOSED TO AMOSITE, CHRYSOTILE OR MIXED FIBERS CONTAINING CROCIDOLITE. AN EXCESS OF LARYNGEAL CANCER HAS ALSO BEEN REPORTED.
ASBESTOS IS A SKIN, EYE AND MUCOUS MEMBRANE IRRITANT.

HEALTH EFFECTS AND FIRST AID

INHALATION:
ASBESTOS:

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IRRITANT/CARCINOGEN.
ACUTE EXPOSURE- MAY CAUSE ACUTE IRRITATION AND COUGHING.

CHRONIC EXPOSURE- INTENSE EXPOSURE MAY CAUSE PULMONARY FIBROSIS, A TERMINAL PNEUMOCONIOSIS CALLED "ASBESTOSIS", WHICH MAY APPEAR AS SOON AS 13 YEARS AFTER EXPOSURE, BUT TYPICALLY DEVELOPS OVER 20-40 YEARS. FATAL EXPOSURE MAY BE AS BRIEF AS 3 MONTHS DURING CHILDHOOD. DYSPNEA IS THE MAIN SYMPTOM, FOLLOWED BY CHEST PAIN, COUGHING, DECREASED VITAL CAPACITY, BASAL RALES, CYANOSIS, COR PULMONALE, CLUBBING OF THE FINGERS AND TOES, ANOREXIA, WEAKNESS, AND WEIGHT LOSS. RADIOLOGIC STUDIES MAY SHOW DIFFUSE INCREASE IN LUNG DENSITY AND PLEURAL CALCIFICATION. SPONTANEOUS PLEURAL EFFUSION HAS OCCURRED IN ASBESTOS-EXPOSED WORKERS AS SOON AS 3-4 YEARS AFTER INITIAL EXPOSURE. ASBESTOS WORKERS SHOW AN INCREASE IN PLEURAL OR PERITONEAL MESOTHELIOMAS AND HIGH RATES OF RESPIRATORY CANCER. THE LATENT PERIOD FOR LUNG CANCER IS USUALLY 15-30 YEARS; FOR MESOTHELIOMA, 3.5-30 YEARS. THE INCIDENCE OF PULMONARY FIBROSIS AND LUNG CANCER IN ASBESTOS-EXPOSED WORKERS IS INCREASED BY SMOKING.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
ASBESTOS:
IRRITANT.
ACUTE EXPOSURE- MAY CAUSE REDNESS, IRRITATION, AND ITCHING. ASBESTOS FIBERS MAY PENETRATE THE SKIN AND RESULT IN "ASBESTOS CORNS", DUE TO THICKENING OF THE SKIN AROUND THE IMPLANTED FIBER. THESE CORNS DO NOT LEAD TO SKIN TUMORS AND DISAPPEAR ON REMOVAL OF THE FIBERS.

CHRONIC EXPOSURE- PROLONGED OR REPEATED EXPOSURE MAY CAUSE DERMATITIS.

FIRST AID- REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT:
ASBESTOS:
IRRITANT.
ACUTE EXPOSURE- DIRECT CONTACT MAY CAUSE REDNESS AND IRRITATION.

CHRONIC EXPOSURE- PROLONGED OR REPEATED EXPOSURE MAY CAUSE CONJUNCTIVITIS.

FIRST AID- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
ASBESTOS:
ACUTE EXPOSURE- INGESTION MAY CAUSE GASTROINTESTINAL IRRITATION.

CHRONIC EXPOSURE- PROLONGED OR REPEATED INGESTION OF ASBESTOS FIBERS MAY BE INVOLVED IN STOMACH, COLON, AND RECTAL CANCER. ASBESTOS CONTAMINATED RICE HAS BEEN SUGGESTED AS THE CAUSE FOR A HIGH INCIDENCE OF STOMACH CANCER IN JAPAN.

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FIRST AID- REMOVE BY GASTRIC LAVAGE OR EMESIS. MAINTAIN BLOOD PRESSURE AND AIRWAY. GIVE OXYGEN IF RESPIRATION IS DEPRESSED. DO NOT PERFORM GASTRIC LAVAGE OR EMESIS IF VICTIM IS UNCONSCIOUS. GET MEDICAL ATTENTION IMMEDIATELY. (DREISBACH, HANDBOOK OF POISONING, 11TH ED.) ADMINISTRATION OF GASTRIC LAVAGE OR OXYGEN SHOULD BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.

ANTIDOTE:
NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

REACTIVITY

REACTIVITY:
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:
TRI-N-BROMOMELAMINE: EXPLOSIVE REACTION.
SODIUM HYDROXIDE: POSSIBLE EXPLOSION.
CARBON TETRACHLORIDE: CAUSES FORMATION OF EXPLOSIVE DI- AND TRI-CHLOROBUTYLENE EPOXIDE.
CHLOROSULFONIC ACID: EXOTHERMIC REACTION.
NITRIC ACID: EXOTHERMIC REACTION.
OLEUM:EXOTHERMIC REACTION.
SULFURIC ACID: EXOTHERMIC REACTION.
OXIDIZING MATERIALS: VIGOROUS REACTION.
PHOSPHORUS TRICHLORIDE: PREPARATORY HAZARD (EXPLOSIVE) WHILE DISTILLING IN CARBON DIOXIDE STREAM.

DECOMPOSITION:
THERMAL DECOMPOSITION MAY RELEASE ACRID SMOKE AND IRRITATING FUMES.

POLYMERIZATION:
NO DATA AVAILABLE.

STORAGE AND DISPOSAL

ASBESTOS WASTE, SCRAP, DEBRIS, BAGS, CONTAINERS, EQUIPMENT, AND ASBESTOS-CONTAMINATED CLOTHING, CONSIGNED FOR DISPOSAL, WHICH MAY PRODUCE IN ANY REASONABLY FORESEEABLE USE, HANDLING, STORAGE, PROCESSING, DISPOSAL, OR TRANSPORTATION AIRBORNE CONCENTRATIONS OF ASBESTOS FIBERS IN EXCESS OF THE EXPOSURE LIMITS PRESCRIBED SHALL BE COLLECTED AND DISPOSED OF IN SEALED IMPERMEABLE BAGS, OR OTHER CLOSED, IMPERMEABLE CONTAINERS.

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CONDITIONS TO AVOID

ADEQUATELY WET OR MIX WITH WATER TO FORM A SLURRY. SEAL MATERIAL IN A LEAK-TIGHT CONTAINER WHILE WET. LABEL CONTAINERS AS SPECIFIED IN 29CFR 1910.1001.

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SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:
SWEEP UP AND PLACE IN SUITABLE CLEAN, DRY CONTAINERS FOR LATER DISPOSAL. DO NOT FLUSH WITH WATER. KEEP UNNECESSARY PEOPLE AWAY.

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PROTECTIVE EQUIPMENT

VENTILATION:
LOCAL EXHAUSE VENTILATION AND DUST COLLECTION SYSTEMS SHALL BE DESIGNED, CONSTRUCTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE AMERICAN NATIONSL STANDARD FUNDAMENTALS GOVERNING THE DESIGN AND OPERATION OF LOCAL EXHAUST SYSTEMS. ANSI Z9.2-1971.

RESPIRATOR:
THE FOLLOWING RESPIRATORS ARE THE MINIMUM LEGAL REQUIREMENTS AS SET FORTH BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION FOUND IN 29CFR1910, SUBPART Z.

REQUIRED RESPIRATORS FOR ASBESTOS

AIRBORNE CONCENTRATION (TWA):	REQUIRED RESPIRATOR:
NOT IN EXCESS OF 20 FIBERS/CC	REUSABLE OR SINGLE USE AIR-PURIFYING RESPIRATOR.
NOT IN EXCESS OF 200 FIBERS/CC	FULL FACEPIECE AIR-PURIFYING RESPIRATOR OR POWERED AIR-PURIFYING RESPIRATOR.
GREATER THAN 200 FIBERS/CC	TYPE 'C' CONTINUOUS-FLOW OR PRESSURE-DEMAND SUPPLIED-AIR RESPIRATOR.

(RESPIRATORS SPECIFIED FOR HIGHER CONCENTRATIONS MAY BE USED AT LOWER CONCENTRATIONS OF ASBESTOS)

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

SUPPLIED-AIR RESPIRATOR WITH FULL FACEPIECE AND OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

CLOTHING:
PERSONAL PROTECTIVE EQUIPMENT MUST COMPLY WITH THE PROVISIONS OF 29CFR1910.1001(D). USE CLOTHING, SUCH AS COVERALLS OR SIMILAR WHOLE BODY CLOTHING, HEAD COVERINGS, GLOVES, AND FOOT COVERINGS FOR ANY EMPLOYEE EXPOSED TO AIRBORNE CONCENTRATIONS OF ASBESTOS FIBERS EXCEEDING THE CEILING LIMIT.

GLOVES:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

EYE PROTECTION:
EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES AND A FACESHIELD TO PREVENT CONTACT WITH THIS SUBSTANCE.

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WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHALL PROVIDE AN EYE-WASH FOUNTAIN WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

AUTHORIZED - OCCUPATIONAL HEALTH SERVICES, INC.
CREATION DATE: 02/08/85 REVISION DATE: 05/06/86

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MATERIAL SAFETY DATA SHEET
ADDITIONAL INFORMATION

PRODUCT NAME: ASBESTOS

NOTE: The attached Material Safety Data Sheet was supplied by Occupational Health Services Inc, 400 Plaza Drive, Harmon Meadows, Secaucus, New Jersey 07094

ADDITIONAL INFORMATION:

The user of this MSDS should also refer to:

a) Union Carbide Corporation
Safety/Health Technology Manual, Recommended Practice SH-256 Removal and Handling Asbestos - Containing Insulation Material.

b) Individual Union Carbide Location Standards.

Further information and requirements can be found in:

a) Occupational Safety and Health Standards
Subpart - Toxic and Hazardous Substances
29 CFR 1910.1001 Asbestos

b) Federal EPA Regulation, 40 CFR 61
Hazardous Air Pollutants Subpart M
National Emission Standard for Asbestos

UCC 002267