

MATERIAL SAFETY DATA SHEET

OHS24940

OCCUPATIONAL HEALTH SERVICES, INC.

11 WEST 42ND STREET, 12TH FLOOR

NEW YORK, NEW YORK 10036

1-800-445-MSDS (1-800-445-6737) OR 1-212-789-3535

FOR EMERGENCY SOURCE INFORMATION

CONTACT: 1-615-366-2000

SUBSTANCE IDENTIFICATION

CAS-NUMBER 75-01-4

RTEC-NUMBER KU9625000

SUBSTANCE: VINYL CHLORIDE

TRADE NAMES/SYNONYMS:

CHLOROETHYLENE: CHLOROETHENE: CHLORETHENE: TROVIDUR: ETHYLENE

MONOCHLORIDE: MONOCHLOROETHYLENE: EXON 470: MONOCHLORO ETHENE:

VINYL CHLORIDE MONOMER: VINYL CHLORIDE, INHIBITED: STCC 4905792: RCRA

U043: UN 1086: C2H3CL: OHS24940

CHEMICAL FAMILY:

HALOGEN COMPOUND, ALIPHATIC

MOLECULAR FORMULA: C-H2-C-H-CL

MOLECULAR WEIGHT: 62.50

CERCLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=3 REACTIVITY=2 PERSISTENCE=3

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=4 REACTIVITY=1

COMPONENTS AND CONTAMINANTS

COMPONENT: VINYL CHLORIDE CAS# 75-01-4

PERCENT: >99.9

OTHER CONTAMINANTS: MAY CONTAIN TRACES OF PHENOL OR OTHER INHIBITORS

EXPOSURE LIMIT:

VINYL CHLORIDE:

1.0 PPM OSHA TWA; 5 PPM OSHA 15 MINUTE CEILING;

0.5 PPM OSHA ACTION LEVEL AS AN 8 HOUR TWA

5 PPM ACGIH TWA

ACGIH A1-CONFIRMED HUMAN CARCINOGEN.

LOWEST FEASIBLE LIMIT NIOSH RECOMMENDED EXPOSURE CRITERIA

1 POUND CERCLA SECTION 103 REPORTABLE QUANTITY

SUBJECT TO SARA SECTION 313 ANNUAL TOXIC CHEMICAL RELEASE REPORTING

SUBJECT TO CALIFORNIA PROPOSITION 65 CANCER AND/OR REPRODUCTIVE TOXICITY

WARNING AND RELEASE REQUIREMENTS- (FEBRUARY 27, 1987)

PHYSICAL DATA

DESCRIPTION: COLORLESS GAS WITH A MILD, SWEET ODOR.

BOILING POINT: 9 F (-13 C)

MELTING POINT: -245 F (-154 C)

SPECIFIC GRAVITY: 0.9106

SOLUBILITY IN WATER: 0.25%

VAPOR DENSITY: 2.2

VAPOR PRESSURE: 2515.6 MMHG @ 21.1 C

BOR 006323

ODOR-THRESHOLD: 260 PPM

OTHER SOLVENTS (SOLVENT - SOLUBILITY):
SOLUBLE IN ALCOHOL, ETHER, CARBON TETRACHLORIDE,
BENZENE.

OTHER PHYSICAL DATA

VISCOSITY: 0.01072 CP @ 20 C (GAS); 0.280 CP @ -20 C (LIQUID)

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD
DANGEROUS FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

DANGEROUS EXPLOSION HAZARD WHEN EXPOSED TO HEAT OR FLAME.

VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK.

VAPOR-AIR MIXTURES ARE EXPLOSIVE.

DUE TO LOW ELECTROCONDUCTIVITY OF THE SUBSTANCE, FLOW OR AGITATION MAY GENERATE ELECTROSTATIC CHARGES RESULTING IN SPARKS WITH POSSIBLE IGNITION.

FLASH POINT: -108 F (-78 C)

UPPER EXPLOSION LIMIT: 33%

LOWER EXPLOSION LIMIT: 3.6%

AUTOIGNITION TEMP.: 882 F (472 C)

FIREFIGHTING MEDIA:

DRY CHEMICAL OR CARBON DIOXIDE
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR REGULAR FOAM
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FIREFIGHTING:

MOVE CONTAINER FROM FIRE AREA IF YOU CAN DO IT WITHOUT RISK. FOR MASSIVE FIRE IN CARGO AREA, USE UNMANNED HOSE HOLDER OR MONITOR NOZZLES; IF THIS IS IMPOSSIBLE, WITHDRAW FROM AREA AND LET FIRE BURN. WITHDRAW IMMEDIATELY IN CASE OF RISING SOUND FROM VENTING SAFETY DEVICE OR ANY DISCOLORATION OF TANK DUE TO FIRE. COOL CONTAINER WITH WATER USING UNMANNED DEVICE UNTIL WELL AFTER FIRE IS OUT. LET TANK, TANK CAR OR TANK TRUCK BURN UNLESS LEAK CAN BE STOPPED; WITH SMALLER TANKS OR CYLINDERS, EXTINGUISH/ISOLATE FROM OTHER FLAMMABLES. ISOLATE FOR 1/2 MILE IN ALL DIRECTIONS IF TANK, RAIL CAR OR TANK TRUCK IS INVOLVED IN FIRE (1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5, GUIDE PAGE 17).

EXTINGUISH ONLY IF FLOW CAN BE STOPPED; USE WATER IN FLOODING QUANTITIES AS FOG. COOL CONTAINERS WITH FLOODING AMOUNTS OF WATER, APPLY FROM AS FAR A DISTANCE AS POSSIBLE. AVOID BREATHING TOXIC VAPORS, KEEP UPWIND. EVACUATE TO A RADIUS OF 2500 FEET FOR UNCONTROLLABLE FIRES. CONSIDER EVACUATION OF DOWNWIND AREA IF MATERIAL IS LEAKING.

STOP FLOW OF GAS (NFPA 325M, FIRE HAZARD PROPERTIES OF FLAMMABLE LIQUIDS, GASES, AND VOLATILE SOLIDS, 1984).

TRANSPORTATION

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49 CFR 172.101:
FLAMMABLE GAS

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49 CFR 172.101 AND
SUBPART E:
FLAMMABLE GAS

DEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: 49 CFR 173.304;
49 CFR 173.314 AND 49 CFR 173.315
EXCEPTIONS: 49 CFR 173.306

TOXICITY

VINYL CHLORIDE:

TOXICITY DATA: 500 MG/KG ORAL-RAT LD50; 18 PPH/15 MINUTES INHALATION-RAT LC50;
MUTAGENIC DATA (RTECS); REPRODUCTIVE EFFECTS DATA (RTECS);
TUMORIGENIC DATA (RTECS).

CARCINOGEN STATUS: OSHA CARCINOGEN; KNOWN HUMAN CARCINOGEN (NTP); HUMAN
SUFFICIENT EVIDENCE, ANIMAL SUFFICIENT EVIDENCE (IARC GROUP-1). STUDIES SHOW
OCCUPATIONAL EXPOSURE RESULTED IN A SIGNIFICANT INCREASE IN ANGIOSARCOMAS OF
THE LIVER, AND ALSO TUMORS OF THE BRAIN, LUNG, AND HEMATOPOIETIC SYSTEMS.
VINYL CHLORIDE WAS CARCINOGENIC IN RATS, MICE, AND HAMSTERS FOLLOWING ORAL
AND INHALATION EXPOSURE, PRODUCING ANGIOSARCOMAS OF THE LIVER AND ALSO
TUMORS AT VARIOUS SITES, AND WAS CARCINOGENIC IN RATS FOLLOWING PRENATAL
EXPOSURE.

LOCAL EFFECTS: IRRITANT- SKIN, EYE.

ACUTE TOXICITY LEVEL: TOXIC BY INGESTION; RELATIVELY NON-TOXIC BY INHALATION.

TARGET EFFECTS: CENTRAL NERVOUS SYSTEM DEPRESSANT. POISONING MAY AFFECT THE
BLOOD, LIVER, AND LYMPHATIC AND RESPIRATORY SYSTEMS.

ADDITIONAL DATA: STIMULANTS SUCH AS EPINEPHRINE MAY INDUCE VENTRICULAR
FIBRILLATION.

HEALTH EFFECTS AND FIRST AID

INHALATION:

VINYL CHLORIDE:

NARCOTIC/CARCINOGEN.

ACUTE EXPOSURE- MAY BE IRRITATING. EXPOSURE TO 1000-16,000 PPM MAY
CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION WITH DROWSINESS, VERTIGO,
STAGGERING GAIT, TINGLING AND NUMBNESS OF HANDS AND FEET, IMPAIRED
HEARING AND VISION, CARDIAC ARRHYTHMIAS AND POSSIBLY UNCONSCIOUSNESS;
20,000-25,000 PPM FOR 3-5 MINUTES MAY CAUSE DIZZINESS, LIGHTHEADEDNESS,
DISORIENTATION, NAUSEA AND BURNING SENSATION OF THE SOLES
OF THE FEET; AND 120,000 PPM MAY BE FATAL. ADDITIONAL EFFECTS MAY INCLUDE
NARCOLEPSY, HEADACHE, UNDUE FATIGUE, MUSCLE AND JOINT PAIN, DYSPNEA, AND
ANESTHESIA. DEATH MAY BE DUE TO RESPIRATORY PARALYSIS WITH CARDIAC ARREST.
HUMAN AND ANIMAL PATHOLOGIC REPORTS SHOW PULMONARY EDEMA, HYPEREMIA OF
KIDNEYS AND LIVER, AND HEPATIC DEGENERATION.

CHRONIC EXPOSURE- REPEATED EXPOSURE MAY RESULT IN DOSE-RELATED SENSORY

DISORDERS, AUTONOMIC NERVOUS SYSTEM POLYNEURITIS, SPASTIC ANGIONEURITIS, LEUKOPENIA, THROMBOCYTOPENIA, SPLENOMEGALY, HEPATITIS-LIKE LIVER CHANGES, LIVER MALFUNCTION WITH PORTAL FIBROSIS, IMPOTENCE AND PULMONARY INSUFFICIENCY. WORKERS INVOLVED IN THE POLYMERIZATION PROCESS MAY EXHIBIT A PECULIAR TRIAD OF SYMPTOMS: MODIFICATION OF PERIPHERAL CIRCULATION RESULTING IN PALLOR, CYANOSIS, AND THEN REDNESS (RAYNAUD'S PHENOMENON); SKELETAL CHANGES OF DISTAL PHALANGES (ACRO-OSTEOLYSIS); AND SCLERODERMA LIKE SKIN CHANGES. PSEUDO-CLUBBING OF THE FINGERS MAY ALSO OCCUR. OCCUPATIONAL EXPOSURE HAS PRODUCED ANGIOSARCOMAS OF THE LIVER AND IS ASSOCIATED WITH TUMOR PRODUCTION AT OTHER SITES. ANIMAL STUDIES SHOW THAT VINYL CHLORIDE IS CARCINOGENIC IN RATS FOLLOWING PRENATAL EXPOSURE. ONE STUDY SUGGESTED AN INCREASED FETAL MORTALITY DUE TO EXPOSURE OF THE FATHERS TO VINYL CHLORIDE. SEVERAL STUDIES HAVE REPORTED AN INCREASED RATE OF BIRTH DEFECTS, ESPECIALLY CENTRAL NERVOUS SYSTEM ANOMALIES, IN THE CHILDREN OF PARENTS RESIDING IN COMMUNITIES WHERE VINYL CHLORIDE PRODUCTION AND POLYMERIZATION PLANTS ARE LOCATED.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. MAINTAIN AIRWAY AND BLOOD PRESSURE AND ADMINISTER OXYGEN IF AVAILABLE. KEEP AFFECTED PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. ADMINISTRATION OF OXYGEN SHOULD BE PERFORMED BY QUALIFIED PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
VINYL CHLORIDE:
IRRITANT.

ACUTE EXPOSURE- CONTACT MAY CAUSE IRRITATION WITH REDNESS AND PAIN. DUE TO RAPID EVAPORATION, THE LIQUID MAY CAUSE FROSTBITE WITH REDNESS, TINGLING, AND PAIN OR NUMBNESS. IN MORE SEVERE CASES, THE SKIN MAY BECOME HARD AND WHITE AND DEVELOP BLISTERS.

CHRONIC EXPOSURE- WORKERS HANDLING VINYL CHLORIDE HAVE EXHIBITED A PECULIAR TRIAD OF SYMPTOMS: RAYNAUD'S PHENOMENON, ACRO-OSTEOLYSIS, AND SCLERODERMA LIKE SKIN CHANGES. REPEATED OR PROLONGED EXPOSURE TO IRRITANTS 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.
IN CASE OF FROSTBITE, WARM AFFECTED SKIN IN WARM WATER AT A TEMPERATURE OF 107 F. IF WARM WATER IS NOT AVAILABLE OR IMPRACTICAL TO USE, GENTLY WRAP AFFECTED PART IN BLANKETS. ENCOURAGE VICTIM TO EXERCISE AFFECTED PART WHILE IT IS BEING WARMED. ALLOW CIRCULATION TO RETURN NATURALLY (MATHESON GAS, 6TH ED.). GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT:
VINYL CHLORIDE:
IRRITANT.

ACUTE EXPOSURE- CONTACT MAY CAUSE IMMEDIATE AND SEVERE IRRITATION, AND CORNEAL INJURY WITH COMPLETE RECOVERY IN 48 HOURS. DUE TO RAPID EVAPORATION, THE LIQUID MAY CAUSE FROSTBITE WITH REDNESS, PAIN AND BLURRED VISION.

CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE TO IRRITANTS MAY CAUSE CONJUNCTIVITIS.

FIRST AID- IMMEDIATELY WASH THE EYES WITH LARGE AMOUNTS OF WATER, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). IF FROSTBITE IS PRESENT, WARM WATER MAY BE PREFERRED. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
VINYL CHLORIDE:
CARCINOGEN/TOXIC.

ACUTE EXPOSURE- THE REPORTED LETHAL DOSE IN RATS IS 500 MG/KG. THE SYMPTOMS WERE NOT REPORTED. IF THE LIQUID IS SWALLOWED, FROSTBITE DAMAGE TO THE LIPS, MOUTH AND MUCOUS MEMBRANES MAY OCCUR.

CHRONIC EXPOSURE- ORAL ADMINISTRATION TO RATS, MICE, AND HAMSTERS RESULTED IN TUMOR PRODUCTION AT VARIOUS SITES, INCLUDING ANGIOSARCOMAS OF THE LIVER.

FIRST AID- IF EXTENSIVE VOMITING HAS NOT OCCURRED, THE SUBSTANCE SHOULD BE REMOVED BY EMESIS OR GASTRIC LAVAGE PROVIDED THAT THE PATIENT IS CONSCIOUS AND CONVULSIONS ARE NOT PRESENT. KEEP HEAD BELOW HIPS DURING VOMITING TO PREVENT ASPIRATION. DO NOT ATTEMPT TO MAKE AN UNCONSCIOUS PERSON VOMIT. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY (DREISBACH, HANDBOOK OF POISONING, 12TH ED.). TREATMENT SHOULD BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.

ANTIDOTE:

NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

REACTIVITY SECTION

REACTIVITY:

FORMS UNSTABLE PEROXIDES WHEN EXPOSED TO AIR WHICH MAY INITIATE POLYMERIZATION. MAY ALSO POLYMERIZE ON EXPOSURE TO HEAT OR LIGHT.

INCOMPATIBILITIES:

VINYL CHLORIDE:

ACETYLIDE-FORMING MATERIALS: MAY FORM EXPLOSIVE COMPOUNDS.

ALUMINUM: MAY CAUSE POLYMERIZATION.

COPPER AND ALLOYS: MAY FORM EXPLOSIVE COMPOUNDS.

IRON: MAY CORRODE IN THE PRESENCE OF WATER.

MONEL: MAY FORM EXPLOSIVE COMPOUND.

NITROGEN OXIDES: EXPLODES.

OXIDIZERS (STRONG): FIRE AND EXPLOSION HAZARD.

PEROXIDES: MAY INITIATE POLYMERIZATION.

STEEL: MAY CORRODE IN THE PRESENCE OF WATER.

DECOMPOSITION:

THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE HIGHLY TOXIC FUMES OF PHOSGENE, TOXIC AND CORROSIVE FUMES OF CHLORIDES, AND OXIDES OF CARBON.

POLYMERIZATION:

POLYMERIZATION OCCURS ON EXPOSURE TO SUNLIGHT, HEAT, OR AIR. THE PRESENCE OF IMPURITIES MAY RESULT IN EXOTHERMIC SELF-POLYMERIZATION, GENERATING SUFFICIENT HEAT AND PRESSURE TO RUPTURE THE CONTAINER.

STORAGE-DISPOSAL

OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. FOR ASSISTANCE, CONTACT THE DISTRICT DIRECTOR OF THE

BOR 006327

ENVIRONMENTAL PROTECTION AGENCY.

****STORAGE****

STORE IN ACCORDANCE WITH 29 CFR 1910.101.

PROTECT AGAINST PHYSICAL DAMAGE. OUTSIDE OR DETACHED STORAGE IS PREFERABLE. INSIDE STORAGE SHOULD BE IN A COOL, WELL-VENTILATED, NON-COMBUSTIBLE LOCATION, AWAY FROM ALL POSSIBLE SOURCES OF IGNITION. SEPARATE FROM OXIDIZING MATERIALS. (NFPA 49, HAZARDOUS CHEMICALS DATA, 1975).

BONDING AND GROUNDING: SUBSTANCES WITH LOW ELECTROCONDUCTIVITY, WHICH MAY BE IGNITED BY ELECTROSTATIC SPARKS, SHOULD BE STORED IN CONTAINERS WHICH MEET THE BONDING AND GROUNDING GUIDELINES SPECIFIED IN NFPA 77-1983, RECOMMENDED PRACTICE ON STATIC ELECTRICITY.

****DISPOSAL****

DISPOSAL MUST BE IN ACCORDANCE WITH STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE, 40CFR 262. EPA HAZARDOUS WASTE NUMBER U043.

VINYL CHLORIDE - REGULATORY LEVEL: 0.2 MG/L

MATERIALS WHICH CONTAIN THE ABOVE SUBSTANCE AT OR ABOVE THE REGULATORY LEVEL MEET THE EPA CHARACTERISTIC OF TOXICITY, AND MUST BE DISPOSED OF IN ACCORDANCE WITH 40 CFR PART 262. EPA HAZARDOUS WASTE NUMBER D043.

CONDITIONS TO AVOID

MATERIAL IS EXTREMELY FLAMMABLE; AVOID CONTACT WITH HEAT, SPARKS, FLAMES OR OTHER SOURCES OF IGNITION. CONTENTS ARE UNDER PRESSURE; CONTAINERS MAY RUPTURE VIOLENTLY AND TRAVEL A CONSIDERABLE DISTANCE.

SPILLS AND LEAKS

WATER-SPILL:

THE CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (PROPOSITION 65) PROHIBITS CONTAMINATING ANY KNOWN SOURCE OF DRINKING WATER WITH SUBSTANCES KNOWN TO CAUSE CANCER AND/OR REPRODUCTIVE TOXICITY.

OCCUPATIONAL-SPILL:

SHUT OFF IGNITION SOURCES. STOP LEAK IF YOU CAN DO IT WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. ISOLATE AREA UNTIL GAS HAS DISPERSED. NO SMOKING, FLAMES OR FLARES IN HAZARD AREA! KEEP UNNECESSARY PEOPLE AWAY; ISOLATE HAZARD AREA AND DENY ENTRY. VENTILATE CLOSED SPACES BEFORE ENTERING.

REPORTABLE QUANTITY (RQ): 1 POUND

THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) SECTION 304 REQUIRES THAT A RELEASE EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THIS SUBSTANCE BE IMMEDIATELY REPORTED TO THE LOCAL EMERGENCY PLANNING COMMITTEE AND THE STATE EMERGENCY RESPONSE COMMISSION (40 CFR 355.40). IF THE RELEASE OF THIS SUBSTANCE IS REPORTABLE UNDER CERCLA SECTION 103, THE NATIONAL RESPONSE CENTER MUST BE NOTIFIED IMMEDIATELY AT (800) 424-8802 OR (202) 426-2675 IN THE

PROTECTIVE EQUIPMENT SECTION

VENTILATION:

PROVIDE LOCAL EXHAUST OR PROCESS ENCLOSURE VENTILATION TO MEET THE PUBLISHED EXPOSURE LIMITS. VENTILATION EQUIPMENT MUST BE EXPLOSION-PROOF.

VINYL CHLORIDE:

VENTILATION SHOULD MEET THE REQUIREMENTS IN 29 CFR 1910.1017(F).

RESPIRATOR:

THE FOLLOWING RESPIRATORS ARE THE MINIMUM LEGAL REQUIREMENTS AS SET FORTH BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION FOUND IN 29 CFR 1910, SUBPART Z.

REQUIRED RESPIRATORS FOR VINYL CHLORIDE

ATMOSPHERIC CONCENTRATIONS OF VINYL CHLORIDE

UNKNOWN OR ABOVE 3600 PPM

NOT OVER 3600 PPM

NOT OVER 1000 PPM

NOT OVER 100 PPM

NOT OVER 25 PPM

REQUIRED APPARATUS

OPEN-CIRCUIT, SELF CONTAINED BREATHING APPARATUS, PRESSURE DEMAND TYPE, WITH FULL FACEPIECE

COMBINATION TYPE 'C' SUPPLIED AIR RESPIRATOR, PRESSURE DEMAND TYPE, WITH A FULL OR HALF FACEPIECE AND AUXILIARY SELF-CONTAINED AIR SUPPLY;

OR

COMBINATION TYPE SUPPLIED AIR RESPIRATOR, CONTINUOUS FLOW TYPE, WITH A FULL OR HALF FACEPIECE, AND AUXILIARY SELF-CONTAINED AIR SUPPLY.

TYPE 'C' SUPPLIED AIR RESPIRATOR, CONTINUOUS FLOW TYPE, WITH A FULL OR HALF FACEPIECE, HELMET OR HOOD.

COMBINATION TYPE 'C' SUPPLIED AIR RESPIRATOR, DEMAND TYPE, WITH A FULL FACEPIECE, AND AUXILIARY SELF-CONTAINED AIR SUPPLY;

OR

OPEN-CIRCUIT SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE, IN DEMAND MODE;

OR

TYPE 'C' SUPPLIED AIR RESPIRATOR, DEMAND TYPE, WITH FULL FACEPIECE.

A POWERED AIR PURIFYING RESPIRATOR WITH HOOD, HELMET, FULL OR HALF FACEPIECE, AND A

CANISTER WHICH PROVIDES A SERVICE LIFE OF AT LEAST 4 HOURS FOR CONCENTRATIONS OF VINYL CHLORIDE UP TO 25 PPM;

OR

GAS MASK, FRONT- OR BACK-MOUNTED CANISTER WHICH PROVIDES A SERVICE LIFE OF AT LEAST 4 HOURS FOR CONCENTRATIONS OF VINYL CHLORIDE UP TO 25 PPM.

NOT OVER 10 PPM

COMBINATION TYPE 'C' SUPPLIED AIR RESPIRATOR, WITH A HALF FACEPIECE AND AUXILIARY SELF-CONTAINED AIR SUPPLY;

OR

TYPE 'C' SUPPLIED-AIR RESPIRATOR, DEMAND TYPE, WITH A HALF FACEPIECE;

OR

ANY CHEMICAL CARTRIDGE RESPIRATOR WITH AN ORGANIC VAPOR CARTRIDGE WHICH PROVIDES A SERVICE LIFE OF AT LEAST 1 HOUR FOR CONCENTRATIONS OF VINYL CHLORIDE UP TO 10 PPM.

ENTRY INTO UNKNOWN CONCENTRATIONS OR CONCENTRATIONS GREATER THAN 36,000 PPM (LOWER EXPLOSION LIMIT) MAY BE MADE ONLY FOR THE PURPOSES OF LIFE RESCUE; AND

ENTRY INTO CONCENTRATIONS OF LESS THAN 36,000 PPM, BUT GREATER THAN 3600 PPM MAY BE MADE ONLY FOR THE PURPOSES OF LIFE RESCUE, FIREFIGHTING OR SECURING EQUIPMENT SO AS TO PREVENT A GREATER HAZARD OF RELEASE OF VINYL CHLORIDE.

THE FOLLOWING RESPIRATORS AND MAXIMUM USE CONCENTRATIONS ARE RECOMMENDATIONS BY THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, NIOSH POCKET GUIDE TO CHEMICAL HAZARDS, OR NIOSH CRITERIA DOCUMENTS.

THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORK PLACE, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION (NIOSH-MSHA).

VINYL CHLORIDE (AT ANY DETECTABLE CONCENTRATION):

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

SUPPLIED-AIR RESPIRATOR WITH FULL FACEPIECE 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.

ESCAPE- AIR-PURIFYING FULL FACEPIECE RESPIRATOR (GAS MASK) WITH A CHIN-STYLE OR FRONT- OR BACK-MOUNTED CANISTER PROVIDING PROTECTION AGAINST VINYL CHLORIDE.

ESCAPE-TYPE SELF-CONTAINED BREATHING APPARATUS.

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

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

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ANY 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:

EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE (IMPERVIOUS) CLOTHING AND EQUIPMENT
TO PREVENT ANY POSSIBILITY OF SKIN CONTACT WITH THIS SUBSTANCE.

VINYL CHLORIDE:

PROTECTIVE CLOTHING SHOULD MEET THE REQUIREMENTS FOR PROTECTIVE GARMENTS IN
29 CFR 1910.1017(H).

GLOVES:

FOR GAS: WEAR IMPERVIOUS GLOVES. SPECIFIC TYPE OF GLOVE MAY BE TESTED AND/OR
RECOMMENDED BY MANUFACTURER.

FOR COMPRESSED LIQUID: WEAR FULL PROTECTIVE, COLD INSULATING GLOVES.

VINYL CHLORIDE:

PROTECTIVE GLOVES SHOULD MEET THE REQUIREMENTS FOR PROTECTIVE GARMENTS IN
29 CFR 1910.1017(H).

EYE PROTECTION:

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

EMERGENCY WASH FACILITIES:

WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES AND/OR SKIN MAY BE
EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN
AND QUICK DRENCH SHOWER WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

VINYL CHLORIDE:

PROTECTIVE EYE EQUIPMENT SHOULD MEET THE REQUIREMENTS FOR PROTECTIVE GARMENTS
IN 29 CFR 1910.1017(H).

AUTHORIZED BY- OCCUPATIONAL HEALTH SERVICES, INC.

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BOR 006331