

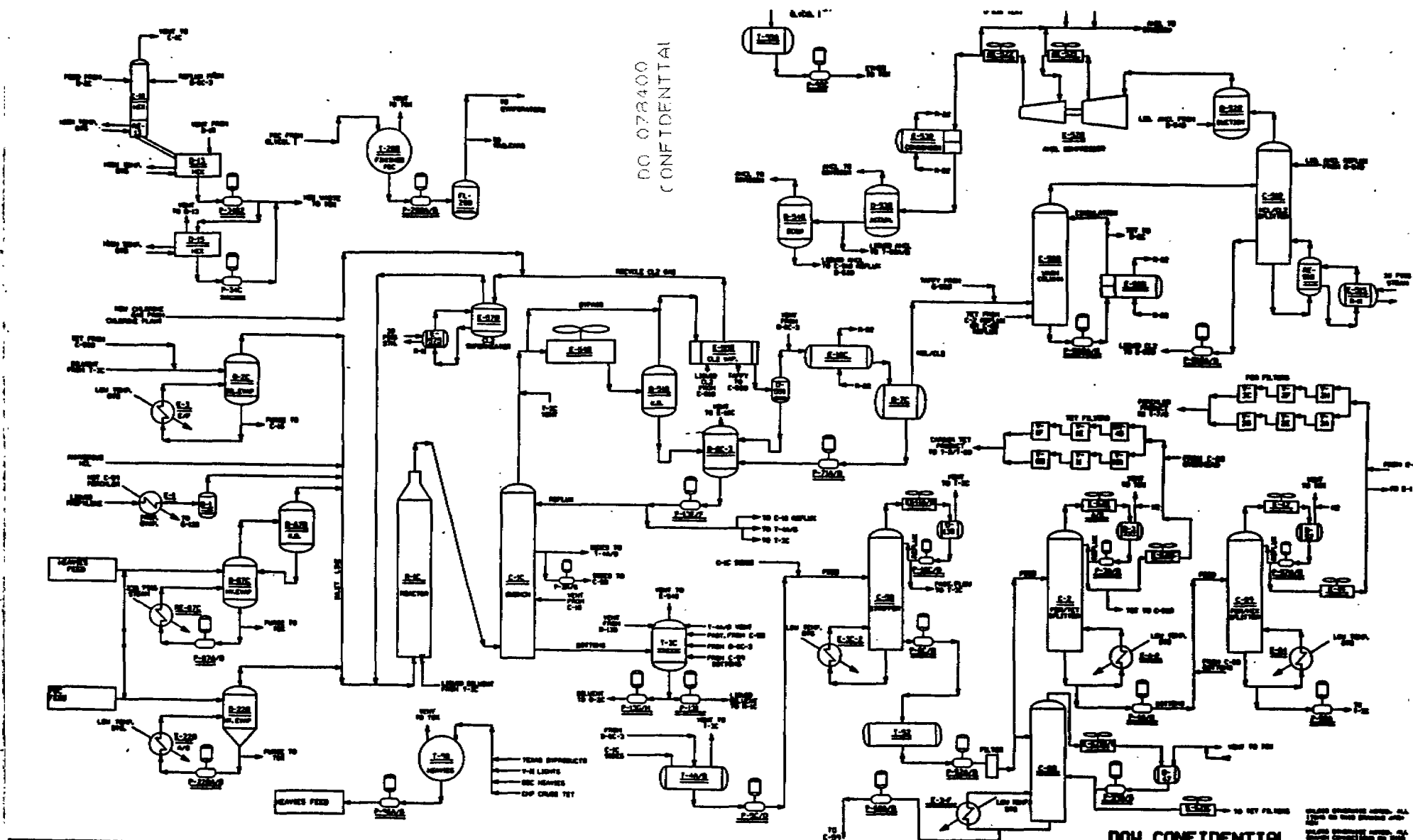
DOW CHEMICAL LAD
SOLVENTS / EDC 1

SOLVENTS PROCESS DESCRIPTION

IN THE SOLVENTS PLANT, CARBON TETRACHLORIDE AND PERCHLOROETHYLENE ARE SYNTHESIZED WHEN A THERMAL CHLORINATION REACTION OCCURS BETWEEN CHLORINE AND VAPORIZED HYDROCARBONS. THE REACTION IS CONTROLLED IN A CHLORINE EXCESS BY THE ADDITION OF DILUENT (LIQUID OR VAPOR) TO THE REACTOR INLET LINE. AFTER THE REACTION IS QUENCHED, THE CRUDE REACTOR PRODUCT FIRST UNDERGOES A LIGHTS REMOVAL PHASE. IN THIS PHASE, THE CHLORINE REMOVED IS RECYCLED BACK TO REACTOR, AND THE HYDROGEN CHLORIDE REMOVED IS EITHER SENT TO THE VINYL II PLANT AS A RAW MATERIAL IN THE PRODUCTION OF ETHYLENE DICHLORIDE OR SENT TO THE ACID SECTION OF THE PLANT AND USED AS A RAW MATERIAL IN THE PRODUCTION OF HYDROCHLORIC ACID. THE NEXT PHASE OF THE DISTILLATION PROCESS OCCURS WHEN THE CARBON TETRACHLORIDE IS DISTILLED FROM THE PERCHLOROETHYLENE AND HEAVIES. THE FINAL PHASE IN THE DISTILLATION SECTION OCCURS WHEN THE PERCHLOROETHYLENE IS DISTILLED FROM THE HEAVIES AND THE HEAVIES ARE SENT BACK TO THE REACTOR SYSTEM AS DILUENT. THE PRODUCTS CARBON TETRACHLORIDE AND PERCHLOROETHYLENE THEN UNDERGO THE FINAL PHASE OF THE PROCESS WHEN THEY ARE FILTERED IN CAUSTIC FLAKE AND ACTIVATED CARBON FILTERS TO REMOVE WATER AND OTHER REMAINING IMPURITIES. THE FINISHED PRODUCTS ARE THEN SENT TO TANK FARM STORAGE AND USED AS A SALES GRADE PRODUCT TO SUPPLY CUSTOMERS THROUGH OUT THE UNITED STATES.

MB:12/89

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THE DOW CHEMICAL COMPANY

PLANTING DIVISION
PLANTING, LOUISIANA

INDEX FLOW SHEET

DATE 1967
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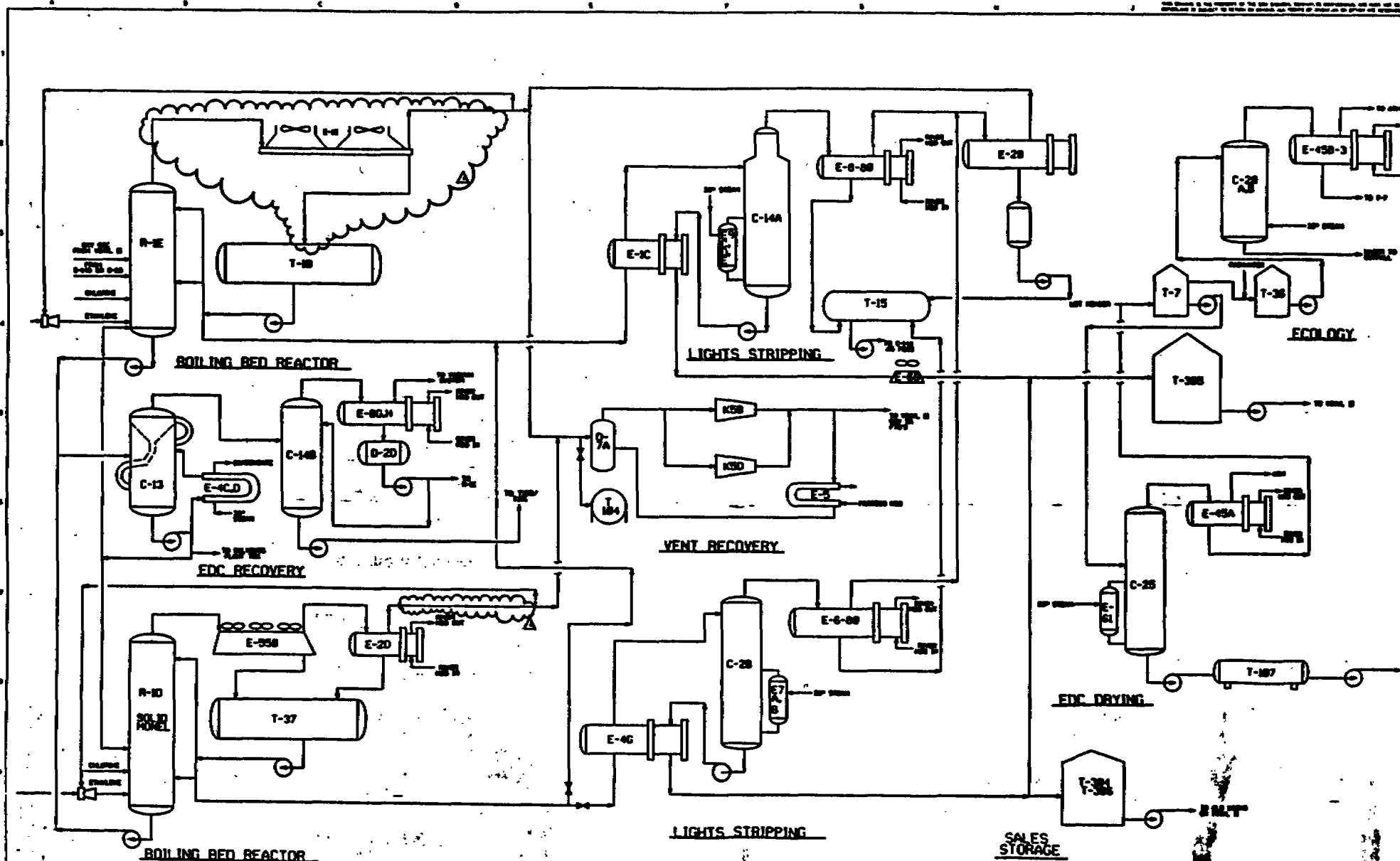
DOW CHEMICAL LAD
SOLVENTS / EDC 1

EDC PROCESS DESCRIPTION

IN THE EDC 1 PLANT, ETHYLENE DICHLORIDE IS SYNTHESIZED WHEN AN EXOTHERMIC REACTION OCCURS BETWEEN CHLORINE AND ETHYLENE. THE REACTION IS CONTROLLED IN AN ETHYLENE EXCESS BY A LIQUID BED OF ETHYLENE DICHLORIDE. THE PRODUCT UNDERGOES A HEAVIES REMOVAL PHASE WHILE IN THE REACTOR ITSELF, AND A LIGHTS REMOVAL PHASE IN THE DISTILLATION SECTION OF THE PLANT. THE HEAVIES REMOVED ARE SENT TO THE SOLVENTS PER / TET REACTOR, R-1C, AS A RAW MATERIAL IN THE PRODUCTION OF PERCHLOROETHYLENE AND CARBON TETRACHLORIDE. THE LIGHTS REMOVED ARE SENT TO THE VINYL II OXY REACTOR AND IN TURN ARE USED AS A RAW MATERIAL IN THE PRODUCTION OF ETHYLENE DICHLORIDE. THE FINISHED PRODUCT ETHYLENE DICHLORIDE IS EITHER SENT TO VINYL II AS A RAW MATERIAL FOR VINYL CHLORIDE MONOMER PRODUCTION, OR, IT IS SENT TO TANK FARM STORAGE AND USED AS A SALES GRADE PRODUCT TO SUPPLY CUSTOMERS THROUGH OUT THE UNITED STATES.

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REVISION				REVISION				REVISION				REVISION			
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THEADOW CHEMICAL COMPANY
UNION BRIDGE
EDC PLANT INDEX FLASHED

CONSEQUENCES OF OVEREXPOSURE (B-1)

COMPOUND: BETA-TRI (1,1,2 TRICHLOROETHANE)

EXPOSURE LIMIT: TWA 10 PPM STEL NONE

ODOR THRESHOLD: NOT YET ESTABLISHED

EYES: LIQUID WILL CAUSE IRRITATION AND PAIN.
LIQUID MAY CAUSE SLIGHT CORNEAL INJURY.
VAPOR MAY CAUSE IRRITATION.

SKIN: SINGLE CONTACT NOT LIKELY TO CAUSE IRRITATION.
REPEATED CONTACT WILL RESULT IN ABSORPTION OF TOXIC
AMOUNTS AND CAN CAUSE IRRITATION AND REDDENING
OF THE SKIN DUE TO EXTRACTION OF SKIN FATS.

INGESTION: NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS.
IF ASPIRATED, WILL BE RAPIDLY ABSORBED IN OTHER
BODILY SYSTEMS.

INHALATION: SHORT TERM - VAPOR WILL CAUSE IRRITATION TO THE
EYES, NOSE, AND THROAT. ALSO MAY
CAUSE DIZZINESS, DROWSINESS, HEADACHE,
AND POSSIBLE LIVER AND/OR KIDNEY
DAMAGE. HIGH CONCENTRATIONS CAN CAUSE
DEATH.

LONG TERM - WILL CAUSE LIVER AND/OR KIDNEY DAMAGE.

COMMENTS: HAS BEEN SHOWN TO PRODUCE TUMORS IN LAB MICE.

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does not exactly agree
with MSD sheet. We
suggest adopting the
MSDS or TME sheet
information.

Bruce

CONSEQUENCES OF OVEREXPOSURE (C-3)

COMPOUND: CARBON TETRACHLORIDE

EXPOSURE LIMIT: TWA 2 PPM STEL NONE

ODOR THRESHOLD: 96 PPM (INADEQUATE)

EYES: LIQUID WILL CAUSE IRRITATION AND PAIN.
CORNEAL INJURY IS NOT LIKELY.
VAPOR MAY CAUSE IRRITATION.

SKIN: SINGLE CONTACT NOT LIKELY TO CAUSE IRRITATION
REPEATED CONTACT WILL RESULT IN ABSORPTION OF TOXIC
AMOUNTS AND CAN CAUSE IRRITATION AND REDDENING
OF THE SKIN DUE TO EXTRACTION OF SKIN FATS.

INGESTION: NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS. *← Quantity need to cause effect? 1.5 ml →*
IF ASPIRATED, WILL BE RAPIDLY ABSORBED IN OTHER
BODILY SYSTEMS.

INHALATION SHORT TERM - VAPOR WILL CAUSE IRRITATION TO THE
EYES, NOSE, AND THROAT. ALSO MAY
CAUSE DIZZINESS, DROWSINESS, HEADACHE,
AND POSSIBLE LIVER AND/OR KIDNEY
DAMAGE. HIGH CONCENTRATIONS CAN CAUSE
DEATH.

LONG TERM - WILL CAUSE LIVER AND/OR KIDNEY DAMAGE.

COMMENTS: CARBON TET IS A LISTED POTENTIAL CARCINOGEN.
HAS BEEN SHOWN TO PRODUCE LIVER TUMORS IN LAB ANIMALS.
ALCOHOL MAY INCREASE POSSIBLE LIVER AND/OR KIDNEY
DAMAGE IN COMBINATION WITH OVEREXPOSURE.

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CONSEQUENCES OF OVEREXPOSURE (C-4)

COMPOUND: CAUSTIC (SODIUM HYDROXIDE)

EXPOSURE LIMIT: TWA 2 MG/M3 AS MIST OR DUST STEL NONE

ODOR THRESHOLD: NOT YET ESTABLISHED

EYES: VAPOR CONTACT NOT LIKELY.
LIQUID WILL CAUSE CORNEAL DESTRUCTION AND RESULT IN LOSS
OF VISION.

SKIN: CAN CAUSE DEEP AND PAINFUL DESTRUCTION OF TISSUE AND
RESULTING IN A SEVERE BURN. DILUTE SOLUTIONS CAN CAUSE
BLISTERING DUE TO EXTRACTION OF SKIN FATS.

INGESTION: VERY PAINFUL WITH DESTRUCTION OF TISSUE.

INHALATION: CAN CAUSE COUGHING WITH PAINFUL NOSE AND THROAT
IRRITATION. ALSO, NASAL TISSUE DESTUCTION IS POSSIBLE.

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CONSEQUENCES OF OVEREXPOSURE (C-5)

COMPOUND: CHLORINE (LIQUID AND H. P. GAS)

EXPOSURE LIMIT: TWA .5 PPM STEL 1 PPM

ODOR THRESHOLD: .3 PPM (ADEQUATE)

EYES: VAPOR WILL CAUSE IRRITATION, PAIN, AND/OR A BURN.
LIQUID WILL CAUSE BURN AND/OR CORNEAL DESTRUCTION.
PERMANENT IMPAIRMENT OF VISION IS POSSIBLE FROM
BOTH VAPOR AND LIQUID.

SKIN: CONTACT WITH HIGH CONCENTRATIONS OF GAS WILL CAUSE BURNING
SENSATION WITH POSSIBLE SWELLING OR BLISTERS.
SINGLE CONTACT CAN CAUSE SEVERE BURNS.
CONTACT WITH LIQUID CAN CAUSE TISSUE DESTRUCTION.

INGESTION: NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS.

INHALATION: SHORT TERM - HIGH CONCENTRATIONS WILL CAUSE IRRITATION
TO THE EYES, NOSE, AND THROAT, WITH
POSSIBLE VOMITING AND UNCONSCIOUSNESS.
VERY HIGH CONCENTRATIONS WILL RESULT IN
THE DESTRUCTION OF LUNG TISSUE AND DEATH.

LONG TERM - INCREASED CHANCE OF RESPIRATORY DISEASE
AND EROSION OF TEETH. WILL ALSO CAUSE
COUGHING AND TIGHTNESS OF CHEST.

MB/10-7-1989

DO 078407
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CONSEQUENCES OF OVEREXPOSURE (D-2)

COMPOUND: DOWTHERM G

EXPOSURE LIMIT: TWA 1 PPM STEL NONE

ODOR THRESHOLD: 1-4 PPM (ADEQUATE)

EYES: VAPOR CAN CAUSE IRRITATION.
LIQUID AT AMBIANT TEMPERATURE CAN CAUSE IRRITATION
AND PAIN. LIQUID AT OPERATING TEMPERATURE WILL CAUSE
CORNEAL DESTRUCTION.

SKIN: CONTACT WITH SKIN AT AMBIANT TEMPERATURE CAN CAUSE
IRRITATION AND REDDENING OF SKIN DUE TO EXTRACTION
OF SKIN FATS. LIQUID AT OPERATING TEMPERATURE CAN
CAUSE SEVERE BURNS AND TISSUE DESTRUCTION.

INGESTION: NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS.

INHALATION: SHORT TERM - IRRITATION TO EYES, NOSE, AND THROAT.
ODOR IS STRONG AND UNPLEASANT.

LONG TERM - WILL CAUSE LIVER AND/OR KIDNEY DAMAGE.

COMMENTS: BECAUSE OF STRONG ODOR, VOLUNTARY OVEREXPOSURE IS
UNLIKELY.

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CONSEQUENCES OF OVEREXPOSURE (E-3)

COMPOUND: ETHYLENE

EXPOSURE LIMIT: NONE - SIMPLE ASPHYXIAN - OXYGEN CONCENTRATION SHOULD ALWAYS BE ABOVE 18 %.

ODOR THRESHOLD: 290 PPM (ADEQUATE)

EYES: VAPOR IS NONIRRITATING.
LIQUID WILL CAUSE CORNEAL DESTRUCTION.

SKIN: VAPOR IS NONIRRITATING.
LIQUID WILL CAUSE TISSUE DESTRUCTION.

INGESTION: NO HAZARD FROM GAS.
NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS.

INHALATION: SHORT TERM - IS AN ASPHYXIAN AND CAN CAUSE DIZZINESS
AND POSSIBLY DEATH DUE TO LACK OF
OXYGEN. NARCOTIC LIKE EFFECT IS SIGN OF
OVEREXPOSURE.

LONG TERM - EFFECTS THE CENTRAL NERVOUS SYSTEM.

COMMENTS: FLAMMABLE.
ASPHYXIAN.

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CONSEQUENCES OF OVEREXPOSURE (E-4)

COMPOUND: ETHYLENE DICHLORIDE

EXPOSURE LIMIT: TWA 1 PPM STEL 2 PPM

ODOR THRESHOLD: 88 PPM (INADEQUATE)

EYES: LIQUID WILL CAUSE IRRITATION AND PAIN.
WILL CAUSE CORNEAL INJURY.
VAPOR WILL CAUSE LACRIMATION (TEARING).

SKIN: SINGLE CONTACT NOT LIKELY TO CAUSE IRRITATION.
REPEATED CONTACT WILL RESULT IN ABSORPTION OF TOXIC
AMOUNTS AND CAN CAUSE IRRITATION AND REDDENING
OF THE SKIN DUE TO EXTRACTION OF SKIN FATS.

INGESTION: NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS.
IF ASPIRATED, WILL BE RAPIDLY ABSORBED IN OTHER
BODILY SYSTEMS.

INHALATION. SHORT TERM - VAPOR WILL CAUSE IRRITATION TO THE
EYES, NOSE, AND THROAT. ALSO MAY
CAUSE DIZZINESS, DROWSINESS, HEADACHE,
AND POSSIBLE LIVER AND/OR KIDNEY
DAMAGE. HIGH CONCENTRATIONS CAN CAUSE
DEATH.

LONG TERM - WILL CAUSE LIVER, LUNG, KIDNEY,
DIGESTIVE TRACT, AND CENTRAL NERVOUS
SYSTEM DAMAGE.

COMMENTS: ETHYLENE DICHLORIDE IS A LISTED POTENTIAL CARCINOGEN.
HAS BEEN SHOWN TO CAUSE CANCER IN LAB ANIMALS.
IT MUST BE NOTED THAT THERE IS A FINE LINE BETWEEN
LEVELS THAT CAUSE NO EFFECT AND LEVELS THAT RESULT
IN REACTIONS SIMILAR TO THOSE STATED ABOVE.

CONSEQUENCES OF OVEREXPOSURE (F-1)

COMPOUND: FERRIC CHLORIDE

EXPOSURE LIMIT: TWA 1mg/m3 STEL NONE

ODOR THRESHOLD: NOT YET ESTABLISHED

EYES: WILL CAUSE SEVERE IRRITATION AND PAIN.
WILL CAUSE CORNEAL INJURY.

SKIN: REPEATED AND PROLONGED CONTACT MAY CAUSE SKIN BURNS.
CAN STAIN SKIN.

INGESTION: NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS.

INHALATION: SHORT TERM - WILL CAUSE SOME PAIN AND DIFFICULTY
BREATHING DUE TO ACIDITY OF COMPOUND.
MAY ALSO CAUSE NAUSEA AND VOMITING IN
HIGH CONCENTRATIONS.

LONG TERM - NO LONG TERM EFFECTS ARE KNOWN.

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CONSEQUENCES OF OVEREXPOSURE (H-1)

HEAT -----

EXCESSIVE SWEATING CAN LEAD TO A SALT IMBALANCE IN THE BODY. THIS IMBALANCE MAY THEN RESULT IN HEAT EXHAUSTION, OR EVEN WORSE, A HEAT STROKE. BOTH ARE CAUSED BY REPEATED OR PROLONGED EXPOSURE WHICH WILL CAUSE THE FAILURE OF THE SWEAT REGULATING MECHANISM THAT COOLS THE BODY. WHEN HEAT STROKE OCCURS, IT IS IMPERATIVE THAT THE VICTIM BE TREATED IMMEDIATELY. IF TREATMENT IS NOT RENDERED QUICKLY, THERE IS A GREAT CHANCE THAT DEATH WILL OCCUR.

IT SHOULD BE REMEMBERED THAT DURING THE HOT MONTHS OF THE YEAR YOUR SALT INTAKE SHOULD INCREASE, ESPECIALLY IF YOU ARE WORKING OUTSIDE. BY INCREASING THE AMOUNT OF SALT USED IN SEASONING YOUR FOOD, YOU WILL BE ABLE TO HELP YOUR BODY'S METABOLISM KEEP PACE WITH THE HEAT, AND THEREBY AVOID HEAT RELATED PROBLEMS.

IT MUST BE REMEMBERED TO TAKE A COUPLE OF EXTRA BREAKS AND ALSO TO CONSUME AS MUCH WATER AS POSSIBLE.

CONSEQUENCES OF OVEREXPOSURE (H-2)

COMPOUND: HEXACHLOROBENZENE

EXPOSURE LIMIT: TWA - NONE ESTABLISHED FOR AIR, HOWEVER, DOW MEDICAL DEPARTMENT LIMIT IS 150 PPB IN BLOOD.

ODOR THRESHOLD: NOT YET ESTABLISHED.

EYES: ESSENTIALLY NONIRRITATING.
CONTACT WITH DUST WILL CAUSE IRRITATION SIMILAR TO THAT
OF ANY FOREIGN MATERIAL.

SKIN- TOXIC AMOUNTS CAN BE ABSORBED THROUGH REPEATED SKIN CONTACT BUT MAIN HAZARD IS BIOACCUMULATION. LIQUID CAN CAUSE MODERATE IRRITATION. REPEATED OR PROLONGED EXPOSURE CAN CAUSE LIVER AND/OR KIDNEY DAMAGE AND IN SEVERE CASES DEATH. CONTACT WITH DUST MAY CAUSE SLIGHT IRRITATION.

INGESTION: AMOUNTS SWALLOWED DURING NORMAL PLANT OPERATING CONDITIONS DO NOT POSE A HEALTH THREAT. LARGER DOSES, HOWEVER, COULD LEAD TO SERIOUS HEALTH PROBLEMS, INCLUDING LIVER AND/OR KIDNEY DAMAGE. MAIN HAZARD IS BIOACCUMULATION.

INHALATION: VAPORS ARE UNLIKELY DUE TO PHYSICAL PROPERTIES OF
COMPOUND.
CONTACT WITH DUST WILL CONTRIBUTE TO BIOACCUMULATION.

COMMENTS: HEXACHLORO BENZENE IS A LISTED POTENTIAL CARCINOGEN.
HAS BEEN SHOWN TO CAUSE CANCER IN LAB ANIMALS.
HAS BEEN SHOWN TO CAUSE BIRTH DEFECTS IN LAB ANIMALS.
HAS BEEN SHOWN TO BE PRESENT IN TOXIC AMOUNTS IN
BABIES OF FEMALE HUMANS KNOWN TO HAVE INGESTED TOXIC
AMOUNTS.

CONSEQUENCES OF OVEREXPOSURE (H-3)

COMPOUND: HEXACHLOROBUTADIENE

EXPOSURE LIMIT: TWA .02 PPM STEL NONE

ODOR THRESHOLD: .2 PPM (INADEQUATE)

EYES: LIQUID WILL CAUSE IRRITATION AND PAIN.
 CONTACT WITH DUST WILL CAUSE IRRITATION SIMILAR TO THAT
 OF ANY FOREIGN MATERIAL.
 VAPOR MAY CAUSE IRRITATION.

SKIN: TOXIC AMOUNTS MAY BE ABSORBED THROUGH THE SKIN.
 A SINGLE PROLONGED CONTACT CAN RESULT IN SUFFICIENT
 ABSORPTION OF MATERIAL AND CAUSE DEATH.
 LIQUID CAN CAUSE MODERATE IRRITATION. REPEATED OR
 PROLONGED EXPOSURE CAN CAUSE LIVER AND/OR KIDNEY DAMAGE
 AND IN SEVERE CASES DEATH.
 CONTACT WITH DUST MAY CAUSE SLIGHT IRRITATION.

INGESTION: AMOUNTS SWALLOWED DURING NORMAL PLANT OPERATING
 CONDITIONS DO NOT POSE A HEALTH THREAT. LARGER DOSES,
 HOWEVER, COULD LEAD TO SERIOUS HEALTH PROBLEMS,
 INCLUDING LIVER AND/OR KIDNEY DAMAGE.

INHALATION: SHORT TERM - LOW CONCENTRATIONS CAN CAUSE NOSE, THROAT,
 AND LUNG IRRITATION. A SINGLE PROLONGED
 CONTACT WITH HIGH CONCENTRATIONS CAN
 CAUSE LIVER AND/OR KIDNEY DAMAGE AND DEATH.

 LONG TERM - MAY LEAD TO SERIOUS HEALTH PROBLEMS
 INCLUDING LIVER AND/OR KIDNEY DAMAGE.

COMMENTS: HEXACHLOROBUTADIENE HAS BEEN SHOWN TO BE CARCINOGENIC
 IN LAB RATS BUT ONLY AT EXCESSIVELY HIGH CONCENTRATIONS.

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CONSEQUENCES OF OVEREXPOSURE (H-4)

COMPOUND: HEXACHLOROETHANE

EXPOSURE LIMIT: TWA 1 PPM STEL NONE

ODOR THRESHOLD: .15 PPM (ADEQUATE)

EYES: WILL CAUSE IRRITATION AND PAIN.
 MAY CAUSE CORNEAL INJURY.
 CONTACT WITH DUST WILL CAUSE IRRITATION SIMILAR TO THAT
 OF ANY FOREIGN MATERIAL.
 VAPOR MAY CAUSE IRRITATION.

SKIN: REPEATED OR PROLONGED EXPOSURE CAN CAUSE SKIN IRRITATION.
 CONTACT WITH DUST MAY CAUSE SLIGHT IRRITATION.

INGESTION: AMOUNTS SWALLOWED DURING NORMAL PLANT OPERATING
 CONDITIONS DO NOT POSE A HEALTH THREAT. LARGER DOSES,
 HOWEVER, COULD LEAD TO SERIOUS HEALTH PROBLEMS,
 INCLUDING LIVER AND/OR KIDNEY DAMAGE.

INHALATION: SHORT TERM - LOW CONCENTRATIONS CAN CAUSE NOSE, THROAT,
 AND LUNG IRRITATION.
 HIGH CONCENTRATIONS CAN CAUSE SERIOUS
 LUNG DAMAGE.

 LONG TERM - MAY LEAD TO SERIOUS HEALTH PROBLEMS
 INCLUDING LIVER AND/OR KIDNEY DAMAGE AND
 CENTRAL NERVOUS SYSTEM EFFECTS.

COMMENTS: HEXACHLOROETHANE HAS BEEN SHOWN TO CAUSE CANCER IN
 LAB ANIMALS.

MD/10-7-89

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CONSEQUENCES OF OVEREXPOSURE (H-5)

COMPOUND: HYDROGEN CHLORIDE (ANHYDROUS)

EXPOSURE LIMIT: TWA 5 PPM-C STEL NONE

ODOR THRESHOLD: .77 PPM (ADEQUATE)

EYES: LIQUID CAN CAUSE SEVERE BURNS, FROSTBITE, AND CORNEAL DESTRUCTION.
VAPOR CAN CAUSE SEVERE BURNS.
BOTH LIQUID AND VAPOR ARE DANGEROUS WHEN THEY COME IN CONTACT WITH THE EYES AND ARE VERY IRRITATING.

SKIN: LIQUID CAN CAUSE SEVERE BURNS, FROSTBITE, AND DESTRUCTION OF TISSUE.
VAPOR CAN CAUSE SEVERE IRRITATION WITH POSSIBLE BURNS.
BOTH LIQUID AND VAPOR ARE DANGEROUS WHEN THEY COME IN CONTACT WITH THE SKIN AND ARE VERY IRRITATING.

INGESTION: NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS.

INHALATION: SHORT TERM - CAN CAUSE SERIOUS INTERNAL INJURY AND EVEN DEATH.

LONG TERM - CAN CAUSE ULCERATION OF THE NOSE AND THROAT AND EROSION OF THE TEETH.

COMMENTS: THE GAS CAN BE ABSORBED BY PERSPIRATION DROPLETS RESULTING IN A MODERATELY IRRITATING STINGING SENSATION.
VOLUNTARY OVEREXPOSURE IS UNLIKELY DUE TO STRONG IRRITATING PROPERTIES.

MB/10-7-29

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CONSEQUENCES OF OVEREXPOSURE (H-6)

COMPOUND: HYDROGEN CHLORIDE (AQUEOUS)

EXPOSURE LIMIT: TWA 5 PPM-C STEL NONE

ODOR THRESHOLD: .77 PPM (ADEQUATE)

EYES: LIQUID CAN CAUSE SEVERE BURNS AND CORNEAL DESTRUCTION.
VAPOR CAN CAUSE BURNS AND IS VERY IRRITATING.

SKIN: LIQUID CAN CAUSE SEVERE BURNS IN PROLONGED CONTACT.
VAPOR IS MODERATELY IRRITATING.

INGESTION: NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS.

INHALATION: SHORT TERM - LOW CONCENTRATIONS CAN CAUSE NOSE AND
THROAT DISCOMFORT AND SOME DIFFICULTY IN
BREATHING.
HIGH CONCENTRATIONS CAN CAUSE ULCERATION
OF THE NOSE AND THROAT AND POSSIBLE
LUNG DAMAGE.

LONG TERM - CAN CAUSE ULCERATION OF THE NOSE AND
THROAT AND POSSIBLE LUNG DAMAGE.

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CONSEQUENCES OF OVEREXPOSURE (M-3)

COMPOUND: METHYLENE CHLORIDE

EXPOSURE LIMIT: TWA 500 PPM STEL NONE

ODOR THRESHOLD: 250 PPM (INADEQUATE)

EYES: LIQUID WILL CAUSE IRRITATION AND PAIN.
CAN CAUSE CORNEAL INJURY.
VAPORS SLIGHTLY IRRITATING.

SKIN: CAN BE MILDLY IRRITATING IN SMALL QUANTITIES. REPEATED
AND PROLONGED EXPOSURE WILL CAUSE DRYNESS AND REDDENING
OF SKIN DUE TO EXTRACTION OF SKIN FATS. CONFINED CONTACT
CAN CAUSE BURNS.

INGESTION: NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS.
IF ASPIRATED, WILL BE RAPIDLY ABSORBED IN OTHER
BODILY SYSTEMS.

INHALATION. SHORT TERM - LOW CONCENTRATION'S YIELD SYMPTOM'S
SIMILAR TO ALCOHOL INTOXICATION.
HIGH CONCENTRATION'S WILL RESULT IN
HEADACHE'S AND POSSIBLY UNCONSCIOUSNESS.
EXTREMELY HIGH CONCENTRATION'S CAN
RESULT IN DEATH.

LONG TERM - LONG TERM TOXICITY IS UNLIKELY DUE TO
SHORT TERM EFFECTS, HOWEVER, THERE CAN
BE CENTRAL NERVOUS SYSTEM EFFECTS.

COMMENTS: METHYLENE CHLORIDE IS A LISTED POTENTIAL CARCINOGEN.
HAS BEEN SHOWN TO INCREASE RATE OF SPONTANEOUS
MALIGNANT TUMORS IN LAB MICE AND BENIGN TUMORS IN LAB
RATS.
SMOKING GREATLY INCREASES INHALATION HAZARDS.

CONSEQUENCES OF OVEREXPOSURE (N-3)

COMPOUND: NITROGEN

EXPOSURE LIMIT: NONE - SIMPLE ASPHYXIAN - OXYGEN CONCENTRATION SHOULD ALWAYS BE ABOVE 18 %.

ODOR THRESHOLD: ODORLESS

EYES: CONTACT IS NONIRRITATING.

SKIN: CONTACT IS NONIRRITATING.

INGESTION: NONTOXIC.

INHALATION: SHORT TERM - NONTOXIC. IS AN ASPHYXIAN AND WILL CAUSE DIZZINESS IN OXYGEN DEFICIENT ATMOSPHERE'S. PROLONGED EXPOSURE IN OXYGEN DEFICIENT ATMOSPHERE WILL RESULT IN DEATH.

LONG TERM - NONE.

COMMENT: THE EARTH'S ATMOSPHERE IS NORMALLY 78% NITROGEN AND 21% OXYGEN. OXYGEN CONCENTRATIONS UNDER 21% ARE DANGEROUS AND CONCENTRATIONS UNDER 16% ARE LIFE THREATENING.

MB/10-7-89

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Consequences of Exposure to Toxic Amounts

COMPOUND: Polychlorinated biphenyls (PBC's) in General

EYES: Can be moderately irritating to the eyes.

SKIN: Chloracne can develop with prolonged exposures. The compounds can be readily absorbed through the intact skin. Skin contact should be avoided.

INHALATION: ROOM TEMPERATURE---The hazard of inhalation at room temp. is slight.
HEATED-----May be irritating to the nose and throat. Prolonged exposure to 54% chlorinated diphenyl may produce some liver damage.

INGESTION: Not likely to be swallowed in amounts which are toxic.

COMMENT: The main concern of PCB's is that they will bioaccumulate.

REFERENCE: Patty, Toxicology Reports K-161, T16.3-3 and DR-0178-6067

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ISSUE DATE: 4/29/81

DO 078420
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CONSEQUENCES OF OVEREXPOSURE (P-3)

COMPOUND: PERCHLOROETHYLENE

EXPOSURE LIMIT: TWA 25 PPM STEL NONE

ODOR THRESHOLD: 27 PPM (INADEQUATE)

EYES: LIQUID WILL CAUSE IRRITATION AND PAIN.
CORNEAL INJURY IS NOT LIKELY.
VAPORS WILL CAUSE IRRITATION AT 100 PPM OR GREATER.

SKIN: SINGLE CONTACT NOT LIKELY TO CAUSE IRRITATION.
REPEATED AND PROLONGED EXPOSURE MAY CAUSE REDNESS AND
DRYNESS OR A BURN DUE TO EXTRACTION OF SKIN FATS.

INGESTION: NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS.
IF ASPIRATED, WILL BE RAPIDLY ABSORBED IN OTHER
BODILY SYSTEMS.

INHALATION: SHORT TERM - LOW CONCENTRATIONS WILL CAUSE HEADACHES
WITH MILD EYE, NOSE, AND THROAT IRRITATION,
AND EFFECTS SIMILAR TO ALCOHOL INTOXICATION.
HIGH CONCENTRATIONS CAN CAUSE DEATH.

LONG TERM - CAN CAUSE LIVER AND/OR KIDNEY DAMAGE,
LETHARGY, AND CENTRAL NERVOUS SYSTEM
EFFECTS.

COMMENTS: PERCHLOROETHYLENE IS A LISTED POTENTIAL CARCINOGEN.
HAS BEEN SHOWN TO INCREASE RATE OF SPONTANEOUS
MALIGNANT TUMORS IN LAB MICE AND RATS.
ALCOHOL MAY INCREASE ADVERSE EFFECTS OF EXPOSURE.

MB/10-7-89

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CONSEQUENCES OF OVEREXPOSURE (P-6)

COMPOUND: PROPYLENE DICHLORIDE

EXPOSURE LIMIT: TWA 75 PPM STEL 110 PPM

ODOR THRESHOLD: .25 PPM (ADEQUATE)

EYES: LIQUID WILL CAUSE IRRITATION AND PAIN.
CORNEAL INJURY IS UNLIKELY.
VAPORS WILL CAUSE LACRIMATION (TEARING).

SKIN: SINGLE CONTACT NOT LIKELY TO CAUSE IRRITATION.
REPEATED AND PROLONGED CONTACT MAY CAUSE REDDENING
AND DRYNESS DUE TO EXTRACTION OF SKIN FATS.

INGESTION: NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS.
IF ASPIRATED, WILL BE RAPIDLY ABSORBED IN OTHER
BODILY SYSTEMS.

INHALATION: SHORT TERM - LOW CONCENTRATIONS MAY CAUSE EYE,
NOSE, AND THROAT IRRITATION AND
ALSO CAN CAUSE DIZZINESS AND
INCOORDINATION. HIGH CONCENTRATIONS CAN
CAUSE LIVER AND/OR KIDNEY DAMAGE AND
DEATH.

LONG TERM - CAN CAUSE LIVER AND/OR KIDNEY DAMAGE.

COMMENTS: SOME EVIDENCE OF CANCER IN LAB MICE BUT IS NOT
CONCLUSIVE.
HAS BEEN SHOWN TO HAVE TESTICULAR EFFECT ON LAB
ANIMALS AT CONCENTRATIONS THAT CAUSED DEATH.
ALCOHOL MAY INCREASE ADVERSE EFFECTS OF EXPOSURE.

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CONSEQUENCES OF OVEREXPOSURE (T-2)

COMPOUND: 1,1,2,2 TETRACHLOROETHANE (SYMMETRICAL TETRAS)

EXPOSURE LIMIT: TWA 1 PPM STEL NONE

ODOR THRESHOLD: 1.5 PPM (INADEQUATE)

EYES: LIQUID WILL CAUSE IRRITATION AND PAIN.
LIQUID WILL CAUSE CORNEAL INJURY.
VAPOR WILL CAUSE IRRITATION AND LACRIMATION (TEARING).

SKIN: SINGLE PROLONGED CONTACT WILL RESULT IN TOXIC AMOUNTS
BEING ABSORBED. REPEATED CONTACT WILL CAUSE REDNESS
AND DRYNESS DUE TO EXTRACTION OF SKIN FATS.
REPEATED PROLONGED CONTACT MAY RESULT IN ABSORPTION
OF SUFFICIENT AMOUNTS TO CAUSE DEATH.

INGESTION: NOT LIKELY TO BE SWALLOWED IN TOXIC AMOUNTS.
IF ASPIRATED, WILL BE RAPIDLY ABSORBED IN OTHER
BODILY SYSTEMS.

INHALATION: SHORT TERM - LOW CONCENTRATIONS CAN CAUSE DIZZINESS,
NAUSEA, AND VOMITING. HIGH CONCENTRATIONS
MAY RESULT IN UNCONSCIOUSNESS AND DEATH.

LONG TERM - CAN RESULT IN LIVER AND/OR KIDNEY DAMAGE
AND CENTRAL NERVOUS SYSTEM DEPRESSION.
ALSO HAS NEUROLOGICAL EFFECTS.

COMMENT: THIS MATERIAL IS CONSIDERED TO BE VERY TOXIC THROUGH
VAPOR INHALATION.
ALCOHOL MAY INCREASE ADVERSE EFFECTS OF EXPOSURE.
HAS BEEN SHOWN TO CAUSE CANCER IN LAB ANIMALS.

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