

800000-00000-AYSD DATE OF ISSUE SUPERSEDES
 04/18/88 04/18/88 11/18/88

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED ACCURATE IN LIGHT OF CURRENT FORMULATION, HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THIS DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

SECTION I - GENERAL INFORMATION

CHEMICAL NAME & SYNONYMS TRADE NAME & SYNONYMS
 N/A PROBLEM SOLVER
 CHEMICAL FAMILY FORMULA
 SOLVENT DEGREASER X - MIXTURE
 MANUFACTURER'S NAME
 FRIENDLY SYSTEMS, DIV OF NCH COAP
 ADDRESS NUMBER, STREET, CITY, STATE & ZIP CODE
 P O BOX 1134
 EL PASO, TEXAS 76029
 PREPARED BY PRODUCT CODE NUMBER EMERGENCY TELEPHONE NUMBER
 DON FORRIST'S CHEMIST 0019 310-934-1144
 EXT 013

SECTION II - HAZARDOUS INGREDIENTS

CHEMICAL NAME INGREDIENTS	REG D TYPE	TLV	PEL	CAS#
ALIPHATIC PETROLEUM DISTILLATE	COMB	100PPM	500PPM	2 8032-32-6
PERCHLOROETHYLENE	ANIM	CAS 50PPM	1, 50PPM	1, 127-18-4
METHYLENE CHLORIDE	SUP CAR	100PPM	500PPM	1 75-09-2

SECTION III - PHYSICAL DATA

BOILING PT (ATMOSPHERE) UP 103 SPEC GRAVITY 600/11 1.030

VAPOR PRESSURE (MM HG) 60 COLOR WATER WHITE
 VAPOR DENSITY (AIR=1) 1 ODOR CHLORINATED SOLVENT
 PH @ 100% N/A CLARITY TRANSPARENT
 PERCENT VOLATILE 100 EVAPORATION RATE 0.10
 BY VOLUME (L) (BU AC : 1 :)
 SOLUBILITY IN WATER NEGLIGIBLE
 VISCOSITY NON-VISCOUS

SECTION IV - FIRE AND EXPLOSION HAZARD

FLASH POINT (METHOD USED) FLAMMABLE LIMITS LEL N/A UEL
 180 F C.C.C.
 EXTINGUISHING MEDIA "ALCOHOL" DRY WATER
 X --FOAM X --CO2 X --CHEMICAL --OTHER
 SPECIAL FIRE FIGHTING PROCEDURES
 AS WITH ALL FIRES INVOLVING SOLVENTS PROTECTIVE EQUIPMENT SHOULD BE WORN INCLUDING SELF-CONTAINED BREATHING APPARATUS

UNUSUAL FIRE & EXPLOSION HAZARDS

UNDER CERTAIN CONDITIONS PHOSGENE CAN BE FORMED (TEMPERATURES IN EXCESS OF 1000 F.)

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

NOT ESTABLISHED FOR MIXTURE SEE SECTION II.

EFFECTS OF OVEREXPOSURE

ACUTE (SHORT TERM EXPOSURE)
 CAN LEAD TO CENTRAL NERVOUS SYSTEM DEPRESSION HEADACHE, DIZZINESS, NAUSEA AND LOSS OF CONSCIOUSNESS. WILL DEAFEN AND CAUSE IRRITATION TO EYES CAUSING TEARING AND REDNESS.
 CHRONIC EFFECTS OF OVEREXPOSURE: CENTRAL NERVOUS DEPRESSION OF SYSTEM, KIDNEY DAMAGE, DERMATITIS AND POSSIBLY CANCER.
 SYSTEMIC & OTHER EFFECTS: PERCHLOROETHYLENE HAS CAUSED LIVER AND KIDNEY TOXIC EFFECTS IN CHRONICALLY OVEREXPOSED EXPERIMENTAL ANIMALS.

PROBLEM SOLVER

CARCINOGENICITY THREE STUDIES HAVE BEEN CONDUCTED TO ASSESS THE CARCINOGENIC POTENTIAL OF PERCHLOROETHYLENE IN LABORATORY ANIMALS. SEE SECTION V--CHRONIC EFFECTS OF OVEREXPOSURE.
 CHRONIC - LONG TERM (EXPOSURE)
 SYSTEMIC & OTHER EFFECTS (CONT): IN ONE STUDY, RATS AND MICE WERE EXPOSED BY GAVAGE (ORCE-FED) AT LEVELS OF 800 AND 1000MG/KG/DAY. INCREASED INCIDENCE OF LIVER TUMORS WERE OBSERVED IN MICE. THE RESULTS OF THE RAT STUDY WERE INCONCLUSIVE DUE TO AN EXCESS IN ANIMAL DEATHS. THE SECOND STUDY INVOLVED RATS EXPOSED TO CONCENTRATIONS UP TO 600 PPM VIA INHALATION, SIX HOURS PER DAY, 5 DAYS PER WEEK FOR ONE YEAR. THE ANIMALS WERE OBSERVED UNTIL THE TIME OF DEATH OR UNTIL THE 31ST MONTH AND STUDIES INDICATE NO STATISTICALLY SIGNIFICANT INCREASE IN TUMORS. THE SIGNIFICANCE OF THE 2ND STUDY HAS BEEN IN QUESTION SINCE EXPOSURE LASTED FOR ONLY ONE YEAR. A THIRD STUDY CONDUCTED FOR THE NATIONAL TOXICOLOGY PROGRAM WITH INVOLVED EXPOSURE OF MICE TO 100 OR 200 PPM AND RATS TO 100 AND 400 PPM FOR SIX HOURS PER DAY, 5 DAYS PER WEEK FOR 2 YEARS. SEE SECTION VI--TOXICITY INFO.
 PRIMARY ROUTE OF ENTRY: 6 -- INHALATION -- INGESTION 2 -- ABSORPTION
 EMERGENCY & FIRST AID PROCEDURES

INHALATION
 MOVE TO FRESH AIR AND TREAT SYMPTOMATICALLY. GIVE OXYGEN IF BREATHING IS DIFFICULT. GIVE ARTIFICIAL RESPIRATION IF BREATHING STOPS. GET MEDICAL HELP.

EYE CONTACT
 FLUSH WITH WATER FOR 5-6 MINUTES. HOLDING EYELIDS OPEN OCCASIONALLY FOR MAXIMUM BENEFIT. SEE A PHYSICIAN IF IRRITATION PERSISTS.

SKIN CONTACT
 WASH WITH SOAP AND WATER. APPLY AN EMOLLIENT RICH CREAM. SEE A PHYSICIAN IF IRRITATION PERSISTS.

INGESTION
 DO NOT INDUCE VOMITING EVEN IF VOMITING OCCURS. IF IT OCCURS, KEEP HEAD BELOW HIPS TO PREVENT ASPIRATION OF LIQUID INTO LUNGS. GET MEDICAL ATTENTION IMMEDIATELY.

NOTES TO PHYSICIAN
 DEPENDING ON THE AMOUNT INGESTED AND RETAINED AS WELL AS THE TOXICITY OF THE PRODUCT, GASTRIC LAVAGE SHOULD BE CONSIDERED. KEEP PATIENT'S HEAD BELOW HIPS TO PREVENT PULMONARY ASPIRATION. IF COMATOSE, A CUFFED ENDOTRACHEAL TUBE WILL PREVENT ASPIRATION. CONSULT A POISON CONTROL CENTER.

SECTION VI - TOXICITY INFORMATION

PERCHLOROETHYLENE ALIPHATIC PETROLEUM DISTILLATE
 TERATOGENICITY 96-HOUR TLD, 100MG/M3/24H 3
 96-HOUR TLD, 500PPM/15M 2
 96-HOUR TLD, 1475MG/6G 2
 CARCINOGENESIS
 ORAL-MUS. 500 MG/6G D 1. SYSTEMIC & OTHER EFFECTS (CONT)

PROBLEM SOLVER

96-HOUR TLD: 500PPM/15M-EYE 2 INCREASED INCIDENCE OF LIVER TUMORS WERE OBSERVED IN MICE. IN RATS AN INCREASE IN A BONE KIDNEY TUMOR WAS OBSERVED IN THE MALE RAT, AND BOTH MALES AND FEMALES HAD AN INCREASED INCIDENCE OF MONONUCLEAR CELL LEUKEMIA. THE INTERNATIONAL AGENCY FOR CANCER RESEARCH CONSIDERS LIVER TUMORS IN MICE AS LIMITED EVIDENCE OF ANIMAL CARCINOGENICITY.
 96-HOUR TLD 500PPM/15M-TPX-BLD 2. SEE SECTION XII-REFERENCES.

SECTION VII - REACTIVITY DATA

STABILITY X --STABLE --UNSTAB. CONDITIONS TO AVOID

OPEN FLAMES

INCOMPATIBILITY (MATERIALS TO AVOID)
 STRONG ALKALIS ACIDS, SELECTED AMINES, AND ALUMINUM WHEN IN THE PRESENCE OF WATER AND CLOSE CONTACT UNDER PRESSURE.

HAZARDOUS DECOMPOSITION PRODUCTS
 CAN AT DECOMPOSITION TEMPERATURE RELEASE CARBON DIOXIDE, CARBON MONOXIDE, HYDROGEN CHLORIDE AND PHOSGENE.

HAZARDOUS X --STABLE MAY --UNSTAB. CONDITIONS TO AVOID
 --OCCUR --OCCUR

POLYMERIZATION N/A

SECTION VIII - SPILL OR LEAK PROCEDURES

STEPS TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
 REMOVE ALL SOURCES OF IGNITION. PREVENT FROM ENTERING SEWER OR WATER SOURCES. VENTILATE ENCLOSED SPACE. WEAR RESPIRATOR. CLEAN UP (ANY ELECTRIC CLEANING EQUIPMENT MUST BE EXPLOSION PROOF) OR SOAK UP WITH SAND, COTTON WASTE OR OTHER ABSORBENT MATERIAL.

WASTE DISPOSAL METHOD

THE WASTE LIQUIDS SHOULD BE SENT TO A LICENSED RECLAIMER OR INCUBERATED AT A LICENSED INCUBATOR. WIPED MATERIALS MAY BE DISPOSED OF IN A LAND-FILL. DISPOSE OF IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL POLLUTION REGULATIONS.

NEUTRALIZING AGENT

N/A

REQUIRED VENTILATION
 LOCAL EXHAUST SHOULD BE EMPLOYED TO KEEP AIR QUALITY AT OR EQUAL TO
 THE MAXIMUM ALLOWED CONCENTRATION

RESPIRATORY PROTECTION
 NO RESPIRATOR IS NEEDED IN NORMAL USE IN EMERGENCY SITUATIONS, HOWEVER
 THE FOLLOWING ARE RECOMMENDED
 500 PPM: CCR0V9F1GM0V1S1F1SC1A1F
 1000 PPM: CCR0V9F1GM0V1S1F1SC1A1F
 ESCAPE: GM0V1S1C1A1F

PROTECTIVE GLOVES
 NITRIL, PVA, OR EQUIVALENT

EYE PROTECTION
 GOGGLES, DO NOT WEAR CONTACTS

OTHER PROTECTION
 HEADGEAR AND APRON WHEN SPRAYING

SECTION X - STORAGE AND HANDLING INFORMATION

STORAGE TEMPERATURE INDOOR HEATED REFRIGERATED OUTDOOR
 120 F --MAX --50 F --MIN X

PRECAUTIONS TO BE TAKEN IN HANDLING & STORING
 FOLLOW LABEL DIRECTIONS
 KEEP OUT OF EYES AND SKIN VAPORS HARMFUL

OTHER PRECAUTIONS
 KEEP OUT OF REACH OF CHILDREN

SECTION XI - TRANSPORTATION - FOR FUTURE USE

APPLICABLE REGULATIONS --49 CFR --IMCO --TARSI & D --IATA --MILITARY AIR LAWS 91-4

SHIPPING NAME

HAZARD CLASS ID NUMBER REPORT QTY

LABELS LIMITED QTY

UNIT CONTAINER

DOT EPS CONTAINER NET EXPLOSIVE WT

AEROSOL PROPELLANT(S)

SECTION XII - REFERENCES

1. INDUSTRIAL HYGIENE & TOXICOLOGY, 2ND EDITION F. A. PATTY, 1981
2. NIOSH REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES, 1982
3. CHEMICAL REGULATION REPORT

SYSTEMIC & OTHER EFFECTS (CONT.) EPIDEMIOLOGIC STUDIES HAVE BEEN
 INCONCLUSIVE IN DETERMINING WHETHER PERCHLOROETHYLENE CAUSED CANCER IN
 HUMANS. PERCHLOROETHYLENE HAS BEEN IDENTIFIED AS AN ANIMAL CARCINOGEN BY
 NTP, BUT IS NOT LISTED ON THE IARC OR OSHA CARCINOGEN LISTS. AS OF AUGUST
 31 1989 REPRODUCTIVE TOXICITY: STUDIES ON MICE, RATS AND BARBETS HAVE
 BEEN CONDUCTED TO EVALUATE THE POTENTIAL EFFECTS PERCHLOROETHYLENE MAY HAVE
 ON REPRODUCTION AND OFFSPRING OF LABORATORY ANIMALS. PERCHLOROETHYLENE HAS
 BEEN FOUND TO BE EMBRYOTOXIC AND HAS CAUSED DELAYS IN THE DEVELOPMENT OF
 FETUSES. PERCHLOROETHYLENE HAS NOT CAUSED TERATOGENIC (BIRTH DEFECT)
 EFFECTS IN EXPERIMENTAL ANIMALS.
 PRODUCT IS PERFECTLY SUITABLE FOR CLEANING ALUMINUM IN NORMAL OPERATIONS

FRIENDLY SYSTEMS, DIV OF MCH CORP ASSUMES NO RESPONSIBILITY
 FOR PERSONAL INJURY OR PROPERTY DAMAGE TO VENDEES, USER OR
 THIRD PARTIES CAUSED BY THE MATERIAL, SUCH VENDEES OR USERS
 ASSUMES ALL RISKS ASSOCIATED WITH THE USE OF THE MATERIAL.