MATERIAL SAFETY DATA SHEET

EM SCIENCE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER: EM SCIENCE
A DIVISION OF EM INDUSTRIES
P.O. BOX 70
480 DEMOCRAT RD.
GIBBSTOWN, N.J. 08027

PREPARATION DATE: 02/06/93
DATE MSDS PRINTED: APR 19, 1993

INFORMATION PHONE NUMBER: 609-354-9200
HOURS: MON. TO FRI. 8:30-5
CHEMTREC EMERGENCY NUMBER: 800-424-9300
HOURS: 24 HRS A DAY

CATALOG NUMBER(S):
PX0424  PX0425  PX0425P  PX0425S  PX0425T  PX0428
PX0433

CHEMICAL NAME:
PETROLEUM ETHER
TRADE NAME:
PETROLEUM SPIRITS, PETROLEUM NAPTHA, BENZINE
CHEMICAL FAMILY:
ALIPHATIC HYDROCARBON
FORMULA:
MIXTURE

MOLECULAR WEIGHT: N/A

2. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>CAS #</th>
<th>APPR %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-METHYLPENTANE</td>
<td>107-83-5</td>
<td>1-5%</td>
</tr>
<tr>
<td>PENTANE</td>
<td>109-66-0</td>
<td>60-80%</td>
</tr>
<tr>
<td>CYCLOPENTANE</td>
<td>287-92-3</td>
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<tr>
<td>BUTANE, 2,2-DIMETHYL-</td>
<td>75-83-2</td>
<td>1-5%</td>
</tr>
<tr>
<td>2,3-DIMETHYLBUTANE</td>
<td>79-29-8</td>
<td>1-5%</td>
</tr>
<tr>
<td>PENTANE, 3-METHYL-</td>
<td>96-14-0</td>
<td>5-10%</td>
</tr>
<tr>
<td>2-METHYLBUTANE</td>
<td>78-78-4</td>
<td>1-5%</td>
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3. HAZARDS IDENTIFICATION

MSDS (CONTINUED) - PX0424   PAGE # 1
EMERGENCY OVERVIEW

EXTREMELY FLAMMABLE LIQUID AND VAPOR.
HARMFUL OR FATAL IF SWALLOWED.
MAY CAUSE DAMAGE TO LUNGS, THORAX, CENTRAL NERVOUS SYSTEM, AND KIDNEYS.
VAPOR HARMFUL.

APPEARANCE: COLORLESS LIQUID, GASOLINE-LIKE ODOR

POTENTIAL HEALTH EFFECTS (ACUTE AND CHRONIC)

SYMPTOMS OF EXPOSURE:
HARMFUL IF INHALED OR SWALLOWED.
IRRITATING ON CONTACT WITH SKIN, EYES OR MUCOUS MEMBRANES.
VAPOR IRRITATING TO EYES AND RESPIRATORY PASSAGES.
MAY CAUSE KIDNEY DAMAGE, NAUSEA, DIZZINESS, CENTRAL NERVOUS SYSTEM DEPRESSION, RESPIRATORY AND CARDIAC EFFECTS.

MEDICAL COND. AGGRAVATED BY EXPOSURE:
HEART, KIDNEY, AND RESPIRATORY CONDITIONS

ROUTES OF ENTRY: INHALATION, INGESTION

CARCINOGENICITY: THE MATERIAL IS NOT LISTED (IARC, NTP, OSHA) AS CANCER CAUSING AGENT.

4. FIRST AID MEASURES

EMERGENCY FIRST AID:
GET MEDICAL ASSISTANCE FOR ALL CASES OF OVEREXPOSURE.
SKIN: IMMEDIATELY FLUSH THOROUGHLY WITH LARGE AMOUNTS OF WATER.
EYES: IMMEDIATELY FLUSH THOROUGHLY WITH WATER FOR AT LEAST 15 MINUTES.
INHALATION: REMOVE TO FRESH AIR; GIVE ARTIFICIAL RESPIRATION IF BREATHING HAS STOPPED.
INGESTION: CALL A PHYSICIAN IMMEDIATELY. ONLY INDUCE VOMITING AT THE INSTRUCTIONS OF A PHYSICIAN. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

5. FIRE FIGHTING MEASURES

FLASH POINT (F): -50F (EST.)
FLAMMABLE LIMITS LEL (%): 1.10
FLAMMABLE LIMITS UEL (%): 9.90
EXTINGUISHING MEDIA:
CO2, DRY CHEMICAL, "ALCOHOL" FOAM

FIRE FIGHTING PROCEDURES:
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING.

FIRE & EXPLOSION HAZARDS:
DANGEROUS FIRE AND EXPLOSIVE HAZARD.
CONFINED MATERIAL MAY EXPLODE UPON HEATING.
VAPOR CAN TRAVEL DISTANCES TO IGNITION SOURCE AND FLASH BACK.

6. ACCIDENTAL RELEASE MEASURES

SPILL RESPONSE:
EVACUATE THE AREA OF ALL UNNECESSARY PERSONNEL.
WEAR SUITABLE PROTECTIVE EQUIPMENT LISTED UNDER EXPOSURE / PERSONAL PROTECTION.
ELIMINATE ANY IGNITION SOURCES UNTIL THE AREA IS DETERMINED TO BE FREE FROM EXPLOSION OR FIRE HAZARDS.
CONTAIN THE RELEASE AND ELIMINATE ITS SOURCE, IF THIS CAN BE DONE WITHOUT RISK.
TAKE UP AND CONTAINERIZE FOR PROPER DISPOSAL AS DESCRIBED UNDER DISPOSAL.
COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS ON REPORTING RELEASES. REFER TO REGULATORY INFORMATION FOR REPORTABLE QUANTITY AND OTHER REGULATORY DATA.
THE FOLLOWING EM SCIENCE SPILL-X ABSORBENT IS RECOMMENDED FOR THIS PRODUCT:

SX0863   SOLVENT SPILL TREATMENT KIT

7. HANDLING AND STORAGE

HANDLING & STORAGE:
KEEP CONTAINER TIGHTLY CLOSED.
STORE IN A COOL AREA AWAY FROM IGNITION SOURCES AND OXIDIZERS.
DO NOT BREATHE VAPOR.
DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING.
RETAINED RESIDUE MAY MAKE EMPTY CONTAINERS HAZARDOUS; USE CAUTION.
ELECTRICALLY GROUND ALL EQUIPMENT WHEN HANDLING THIS PRODUCT.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION
ENGINEERING CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT:

VENTILATION, RESPIRATORY PROTECTION, PROTECTIVE CLOTHING, EYE PROTECTION
RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT
OR ANY COMPONENT IS EXCEEDED (SEE TLV/PEL), A NIOSH/MSHA APPROVED
AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER
ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER
NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED
CONDITIONS (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING
AND/OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE
EXPOSURE.

MATERIAL SHOULD BE HANDLED OR TRANSFERRED IN AN APPROVED FUME
HOOD OR WITH ADEQUATE VENTILATION.

PROTECTIVE GLOVES (NITRILE, VITON OR EQUIVALENT) SHOULD BE WORN
TO PREVENT SKIN CONTACT

SAFETY GLASSES WITH SIDE SHIELDS SHOULD BE WORN AT ALL TIMES.

IMPERVIOUS PROTECTIVE CLOTHING SHOULD BE WORN TO PREVENT SKIN
CONTACT.

WORK / HYGENIC PRACTICES:

WASH THOROUGHLY AFTER HANDLING.

DO NOT TAKE INTERNALLY.

EYE WASH AND SAFETY EQUIPMENT SHOULD BE READILY AVAILABLE.

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EXPOSURE GUIDELINES

OSHA - PEL:

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<th>STEL</th>
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<td>PPM</td>
<td>MG/M3</td>
<td>PPM</td>
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</tr>
<tr>
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ACGIH - TLV:

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PAGE # 4
PENTANE
600 1770 750 2210

CYCLOPENTANE
600 1720

BUTANE, 2,2-DIMETHYL-

2,3-DIMETHYLBUTANE

PENTANE, 3-METHYL-

2-METHYLBUTANE

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT (C 760 MMHG): 30(MIN)
MELTING POINT (C): <=-40C
SPECIFIC GRAVITY (H2O = 1): 0.642
VAPOR PRESSURE (MM HG): 40 20C
PERCENT VOLATILE BY VOL (%): 99.9+
VAPOR DENSITY (AIR = 1): 2.5
EVAPORATION RATE (BUAC = 1): <= 10
SOLUBILITY IN WATER (%): INSOLUBLE
APPEARANCE: COLORLESS LIQUID, GASOLINE-LIKE ODOR

10. STABILITY AND REACTIVITY

STABILITY: YES

HAZARDOUS POLYMERIZATION: DOES NOT OCCUR

HAZARDOUS DECOMPOSITION: COX

CONDITIONS TO AVOID: HEAT; CONTACT WITH IGNITION SOURCE

MATERIALS TO AVOID:
( ) WATER
( ) ACIDS
( ) BASES
( ) CORROSIVES
( ) OXIDIZERS
( ) OTHER:

11. TOXICOLOGICAL INFORMATION
TOXICITY DATA:
NONE ESTABLISHED

TOXICOLOGICAL FINDINGS:
NONE
CITED IN REGISTRY OF TOXIC EFFECTS OF SUBSTANCES (RTECS)

12. DISPOSAL CONSIDERATIONS

EPA WASTE NUMBERS: DOO1
TREATMENT:
INCINERATION, FUELS BLENDING OR RECYCLE. CONTACT YOUR LOCAL
PERMITTED WASTE DISPOSAL SITE (TSD) FOR PERMISSIBLE TREATMENT
SITES.
ALWAYS CONTACT A PERMITTED WASTE DISPOSER (TSD) TO ASSURE
COMPLIANCE WITH ALL CURRENT LOCAL, STATE AND FEDERAL REGULATIONS.

13. TRANSPORT INFORMATION

DOT PROPER SHIPPING NAME...:
PETROLEUM SPIRIT

DOT ID NUMBER..............: UN1271

14. REGULATORY INFORMATION

TSCA INVENTORY..............:
THIS PRODUCT IS A "MIXTURE". THE CAS NUMBERS OF ALL COMPONENTS
ARE LISTED ON THE TSCA INVENTORY.

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<td>RG</td>
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2-METHYLPENTANE
PENTANE
CYCLOPENTANE
BUTANE, 2,2-DIMETHYL-
2,3-DIMETHYLBUTANE
PENTANE, 3-METHYL-

MSDS (CONTINUED) - PX0424 PAGE # 6
<table>
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<tr>
<th>COMPONENT</th>
<th>OSHA FLOOR LIST</th>
<th>SARA 313</th>
<th>DEMINIMIS FOR SARA 313 (%)</th>
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<tbody>
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</table>

15. OTHER INFORMATION

COMMENTS: NONE

NFPA HAZARD RATINGS:

- HEALTH: 1
- FLAMMABILITY: 4
- REACTIVITY: 0
- SPECIAL HAZARDS: 

REVISION HISTORY:
08/01/81 06/01/84 12/08/86 06/11/87 10/27/87 02/11/88 08/24/88 03/01/91
- = REVISED SECTION
N/A = NOT AVAILABLE
N/E = NONE ESTABLISHED

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