

1. PRODUCT AND COMPANY IDENTIFICATION

Product name Thiokol FNEC 2515 Flexible Novolac Coating - Hardener/Side B
Version # 1.0
Revision date 07-Aug-2006
Company information PolySpec
 6614 Gant Road
 Houston, TX 77066 US
Emergency Chemtrec (800) 424-9300
 International (703) 527-3887

2. COMPOSITION / INFORMATION ON INGREDIENTS

| Component(s) | CAS # | Percent |
|--|---|---------|
| Carbonic acid, calcium salt (1:1) | 471-34-1 | < 20 |
| Benzyl Alcohol | 100-51-6 | < 10 |
| N-aminoethyl piperazine | 140-31-8 | < 10 |
| Non-hazardous and other components below reportable levels | | > 60 |
| Composition comments | This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. | |

3. HAZARDS IDENTIFICATION

Emergency overview Toxic by inhalation, in contact with skin and if swallowed. Causes skin and eye burns.
Potential short term health effects
Eyes Toxic in contact with eyes. This product causes eye burns. Risk of serious damage to eyes.
Skin Toxic in contact with skin. Causes skin burns.
Inhalation Toxic by inhalation.
Ingestion Toxic if swallowed. Do not ingest. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.

4. FIRST AID MEASURES

First aid
Eye contact Immediately flush eyes with plenty of water for at least 20 minutes. Get medical attention immediately.
Skin contact Get medical attention immediately. Remove and isolate contaminated clothing and shoes. Immediately flush skin with running water for at least 20 minutes. For minor skin contact, avoid spreading material on unaffected skin.
Inhalation Call a physician or Poison Control Center immediately. Move to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.
Ingestion If material is ingested, immediately contact a physician or poison control center. Do not induce vomiting without medical advice. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Do not use mouth-to-mouth method if victim ingested the substance.
Notes to physician Symptoms may be delayed.
General advice Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Immediate medical attention is required. Keep victim warm. In case of shortness of breath, give oxygen.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media Carbon dioxide (CO₂). Alcohol foam. Water spray. Water Fog. Polymer foam. Dry chemical powder.

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| Fire fighting equipment/instructions | Move containers from fire area if you can do it without risk. Do not scatter spilled material with high pressure water streams. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. ALWAYS stay away from tanks engulfed in flame. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. Cool containers with flooding quantities of water until well after fire is out. |
| Specific methods | In the event of fire, cool tanks with water spray. Water mist may be used to cool closed containers. |
| Flash point | 200 °F (93.3 °C) Pensky-Martens Closed Cup |

6. ACCIDENTAL RELEASE MEASURES

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| Evacuation procedures | Ventilate closed spaces before entering. Stay upwind. Keep out of low areas. Keep unnecessary personnel away. |
| Containment procedures | Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas. Use water spray to reduce vapors or divert vapor cloud drift. |
| Personal precautions | Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Ensure adequate ventilation. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. |
| Methods for cleaning up | Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Dike far ahead of liquid spill for later disposal. Never return spills in original containers for re-use. Large Spills: Wet down with water and dike for later disposal. After removal flush contaminated area thoroughly with water. |

7. HANDLING AND STORAGE

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| Handling | Do not breathe gas/fumes/vapor/spray. Do not get this material in your eyes, on your skin, or on your clothing. In case of insufficient ventilation wear suitable respiratory equipment. Do not handle or store near an open flame, heat or other sources of ignition. Surfaces may become slippery after spillage. |
| Storage | Keep out of the reach of children. Keep in a cool, well-ventilated place. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Do not freeze. |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits

ACGIH - Threshold Limits Values - Time Weighted Averages (TLV-TWA)

Carbonic acid, calcium salt (1:1) 471-34-1 10 Mg/m³ TWA (particulate matter containing no asbestos and < 1% crystalline silica)

ACGIH - Threshold Limits Values - TLV Basis - Critical Effects

Carbonic acid, calcium salt (1:1) 471-34-1 irritation

Personal protective equipment

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| Respiratory protection | A NIOSH- approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. In case of insufficient ventilation wear suitable respiratory equipment. |
| Hand protection | Protective gloves. |
| Eye protection | Wear chemical goggles. Face-shield. |
| Skin and body protection | Wear chemical protective equipment that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Wear appropriate chemical resistant gloves. Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent). Wear suitable protective clothing. |
| General | Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations. Avoid contact with the skin and the eyes. |

Engineering measures to reduce exposure Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Hygiene measures Keep away from food and drink. Avoid contact with the skin and the eyes. Handle in accordance with good industrial hygiene and safety practice. When using do not smoke.

9. PHYSICAL & CHEMICAL PROPERTIES

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| Density | 11.2455 lb/gal |
| Form | Liquid. |

Specific gravity 1.35

10. CHEMICAL STABILITY & REACTIVITY INFORMATION

Stability Stable at normal conditions.
Conditions to avoid Direct sources of heat.
Hazardous polymerization Will not occur.
Incompatibility Alcohols. Amines. Caustics. Cresol. Glycol. Isocyanates. Phenol. Strong oxidizing agents. Vinyl acetates. Will form explosive mixtures in air.

11. TOXICOLOGICAL INFORMATION

Acute toxicity Causes burns.
Local effects Toxic by inhalation, in contact with skin and if swallowed.

Component analysis - LD50

NIOSH - Selected LD50s and LC50s

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| Benzyl Alcohol | 100-51-6 | Oral LD50 Rat: 1230 mg/kg; Oral LD50 Mouse: 1360 mg/kg; Dermal LD50 Rabbit: 2 g/kg |
| Carbonic acid, calcium salt (1:1) | 471-34-1 | Oral LD50 Rat: 6450 mg/kg |
| N-aminoethyl piperazine | 140-31-8 | Oral LD50 Rat: 2140 µL/kg; Dermal LD50 Rabbit: 880 µL/kg |

Routes of exposure Inhalation. Skin contact. Ingestion.

12. ECOLOGICAL INFORMATION

Ecotoxicity Components of this product have been identified as having potential environmental concerns.

Environmental effects

Ecotoxicity - Freshwater Fish Species Data

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|-------------------------|----------|---|
| Benzyl Alcohol | 100-51-6 | 96 Hr LC50 fathead minnow: 460 mg/L (Static); 96 Hr LC50 bluegill: 10 mg/L (Static) |
| N-aminoethyl piperazine | 140-31-8 | 96 Hr LC50 fathead minnow: 2190 mg/L (flow-through) |

Ecotoxicity - Microtox Data

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| Benzyl Alcohol | 100-51-6 | 5 Min EC50 Photobacterium phosphoreum: 63.7 mg/L; 15 min EC50 Photobacterium phosphoreum: 63.7 mg/L; 30 min EC50 Photobacterium phosphoreum: 71.4 mg/L |
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Ecotoxicity - Water Flea Data

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| Benzyl Alcohol | 100-51-6 | 48 Hr EC50 water flea: 23 mg/L |
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13. DISPOSAL CONSIDERATIONS

Disposal instructions This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose in accordance with all applicable regulations.

14. TRANSPORTATION INFORMATION

Department of Transportation (DOT) Requirements

Not regulated as dangerous goods.

ERG number 153

International Air Transport Association (IATA) Requirements

Not regulated as dangerous goods.

International Maritime Dangerous Goods (IMDG) Code Requirements

Not regulated as dangerous goods.

15. REGULATORY INFORMATION

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
CERCLA/SARA Hazardous Substances - Not applicable.

