

MATERIAL SAFETY DATA SHEET

Product: Aremco-Bond 2220-A Activator
Revision Date: 1/03/2012

1. MATERIAL IDENTIFICATION

Product Name: Aremco-Bond 2220-A Activator

Product Description: Amine Mixture, Beige Paste, Slight Odor
Product Use: High Performance Coating Hardener

Manufacturer: Aremco Products, Inc.
707-B Executive Blvd.
Valley Cottage, NY 10989

Telephone: 845-268-0039
Emergency Phone: 845-268-0039 or Infotrac (24/7) 800-535-5053

2. COMPOSITION

| Ingredient | CAS # | ACGIH TLV (mg/m ³) | OSHA PEL (mg/m ³) |
|--|-------------|--------------------------------|-------------------------------|
| Cycloaliphatic Amine | 1761-71-3 | N/E | N/E |
| Benzyl Alcohol | 100-51-6 | N/E | N/E |
| Aluminum Oxide | 1344-28-1 | 10 | 15 |
| Silica, Pyrogenic, Synthetic Amorphous | 112945-52-5 | 3 | 6 |

Notes:

- 1) This product is a liquid mixture and all powders are encapsulated.
- 2) Exposure values shown for guidance only. Please follow applicable regulations.

3. HAZARDS IDENTIFICATION

Emergency Overview: Causes irritation to eyes, skin, and respiratory and digestive tracts.

Eye Contact: May cause eye irritation and swelling.

Skin Contact: May cause irritation and sensitization. Symptoms can be immediate or delayed several hours.

Inhalation Acute: Vapors may cause irritation and temporary or permanent sensitization.

Ingestion Acute: May cause irritation to mouth, esophagus, and stomach.

Physical: Spilled material is tacky, slippery, and difficult to remove from skin.

Other: Pre-existing skin sensitization may be aggravated by exposure to this product.

HMIS: Health: 2
Flammability: 1
Reactivity: 0
Personal Protection: H

4. FIRST AID MEASURES

Eye Exposure:

Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek immediate medical attention, preferably with an ophthalmologist. If a physician is not immediately available, eye irrigation should be continued for an additional 15 minutes.

Skin Exposure:

Immediately wipe excess material off skin with a dry cloth then wash with plenty of soap and water for at least 5 minutes. See medical attention if irritation develops or persists. Remove contaminated clothing and shoes and clean thoroughly before re-use.

Inhalation:

Remove from immediate source of exposure and assure that victim is breathing. If not breathing, administer cardio-pulmonary resuscitation (CPR). If breathing is difficult, administer oxygen if available. Seek medical attention. Symptoms can be delayed several hours.

Ingestion:

If swallowed, do not induce vomiting. If victim is conscious and alert, give 1-2 glasses of milk or water to drink. Do not give anything by mouth to an unconscious person. Seek medical attention immediately. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist. Vomiting may occur spontaneously. If vomiting occurs and the victim is conscious, give additional milk or water to further dilute the chemical.

Medical Conditions Possibly Aggravated by Exposure:

Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

5. FIRE FIGHTING MEASURES

| | |
|--|---|
| Flash Point: | > 200 °F (closed cup) |
| Flammable Limits: | Not available. |
| Auto-Ignition Temperature: | Not available. |
| Extinguishing Media: | Use carbon dioxide, dry chemical, or appropriate foam. |
| Special Fire Fighting Procedures: | Firefighters should wear NIOSH/MSHA approved positive pressure breathing apparatus with full face-piece and full chemical resistant protective clothing. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later. Extreme heat or water contamination may cause closed containers to explode. |

6. ACCIDENTAL RELEASE MEASURES

| | |
|-----------------------------|---|
| Personal Protection: | Wear chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots. Use NIOSH approved respirator where mist occurs. |
| Spill Cleanup: | Mop up liquid and dispose in accordance with federal, state and local regulations or permits. Flush area with solvent then water to complete cleanup. |

7. HANDLING AND STORAGE

| | |
|------------------|---|
| Handling: | Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Keep container closed. Promptly clean residue from closures with cloth and solvent. Promptly clean up spills. |
| Storage: | Store at room temperature in a dry, well ventilated area, away from combustible material, and away from ignition sources. Keep containers closed. Store in clean plastic or steel containers. |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| | |
|--------------------------------|---|
| Engineering Controls: | Normal ventilation for good working conditions should be used. Keep containers closed. Safety shower and eyewash fountain should be within direct access. |
| Respiratory Protection: | This product is not considered respirable in either the liquid or cured forms. However, if the cured product is polished, ground or chipped during processing, handling or use, powders may be released as airborne respirable particles. In these instances, appropriate personal protection equipment and local ventilation controls must be employed. If exposure limits are exceeded and local ventilation is unavailable, a supplied-air respirator or a self-contained NIOSH-approved vapor respirator is required. |
| Skin Protection: | Wear body-covering protective clothing and gloves. |
| Eye Protection: | Wear chemical goggles or face shield. |

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and chemical here represent typical properties of this product. Contact Technical Sales for exact specifications.

| | |
|--------------------------------|------------------|
| Appearance: | Paste |
| Color: | Beige |
| Odor: | Ammonia Odor |
| pH: | N/D |
| Specific Gravity, g/cc | 1.3 |
| Water Solubility: | Slightly Soluble |
| Boiling Point: | N/D |
| Vapor Pressure (mm Hg): | < 1 @ 25 °C |
| Vapor Density (air=1): | > 1 |
| VOC Content, g/l: | 0.00 |

10. STABILITY AND REACTIVITY

Chemical Stability: This material is stable under normal conditions of use and storage.
Conditions to Avoid: Reacts with epoxy and strong oxidizing agents.
Hazardous Polymerization: Will not occur.
Hazardous Decomposition Materials: Carbon monoxide, carbon dioxide, oxides of nitrogen, and other organic substances.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity Data: Not available
Chronic Toxicity Data: Not available

12. ECOLOGICAL INFORMATION

Ecotoxicity: Not tested
Environmental Fate: Not tested

13. DISPOSAL CONSIDERATIONS

Disposal: Keep out of surface waters, sewers, and waterways entering or leading to surface waters. Notify authorities if any exposure to the environment occurs or is likely to occur. Utilize an appropriate disposal facility, in compliance with federal, state and local environmental control regulations.

14. TRANSPORTATION INFORMATION

DOT UN Status: The material is not a regulated hazardous material for transportation.

15. REGULATORY INFORMATION

U.S. Federal Regulations

CERCLA: No CERCLA reportable quantity has been established for this material.

TSCA: All ingredients of this material are listed on the TSCA inventory.

SARA Title III

Sections 302, 304, 313: This product does not contain any substances reportable under these sections.

Sections 311, 312:

| Hazard Classes | Yes/No |
|-----------------------|---------------|
| Fire Hazard | No |
| Reactivity Hazard | No |
| Pressure Hazard | No |
| Immediate Hazard | Yes |
| Delayed Hazard | No |

| International Inventory | Status |
|--------------------------------|---------------|
| Canada (DSL) | Yes |
| Europe (EINECS/ELINCS) | Yes |
| Australia (AICS) | Yes |
| Japan (MITI) | Yes |
| South Korea (KECL) | Yes |

16. OTHER INFORMATION

NFPA: Health: 3
Flammability: 1
Reactivity: 0

Key Legend Information

| | |
|------------------|--|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| ARD | International Agency for Research on Cancer |
| CAS | Chemical Abstract Service |
| CERCLA | Comprehensive Environmental Response, Compensation & Liability Act |
| DSL | Domestic Substance List |
| HMIS | Hazardous Materials Identification System |
| ND | Not Determined |
| NE | Not Established |
| NFPA | National Fire Protection Association |
| NIOSH | National Institute for Occupational Safety & Health |
| NTP | National Toxicology Program |
| OSHA | Occupational Safety and Health Administration |
| PEL | Permissible Exposure Limit |
| RTECS | Registry of Toxic Effects of Chemical Substances |
| SARA | Superfund Amendments & Reauthorization Act |
| SARA Title III | Emergency Planning & Community Right to Know Act |
| SARA Section 302 | Extremely Hazardous Substances |
| SARA Section 304 | Emergency Release |
| SARA Section 311 | MSDS/List of Chemicals & Hazardous Inventory |
| SARA Section 312 | Emergency & Hazardous Inventory |
| SARA Section 313 | Toxic Chemicals & Release Reporting |
| STEL | Short Term Exposure Limit |
| TLV | Threshold Limit Value |
| TWA | Time Weighted Average |

Disclaimer: The information contained herein is based on data taken from sources believed to be both current and reliable at the time of publication. Arengo Products, Inc. makes no warranty, expressed or implied, as to the accuracy of this MSDS and assumes no liability arising from its use by others. Compliance with all applicable Federal, State and Local laws and regulations remains the responsibility of the user.

MATERIAL SAFETY DATA SHEET

Product: Aremco-Bond 2220-B Resin
Revision Date: 1/03/2012

1. MATERIAL IDENTIFICATION

Product Name: Aremco-Bond 2220-B Resin

Product Description: Epoxy Resin Mixture, Grey, Slight Odor
Product Use: High Performance Adhesive Resin

Manufacturer: Aremco Products, Inc.
707-B Executive Blvd.
Valley Cottage, NY 10989

Telephone: 845-268-0039
Emergency Phone: 845-268-0039 or Infotrac (24/7) 800-535-5053

2. COMPOSITION

| Ingredient | CAS # | ACGIH TLV (mg/m ³) | OSHA PEL (mg/m ³) |
|--|-------------|--------------------------------|-------------------------------|
| Bisphenol-A Epoxy Resin | 25068-38-6 | N/E | N/E |
| Aluminum Oxide | 1344-28-1 | 10 | 15 |
| Silica, Pyrogenic, Synthetic Amorphous (Cabosil) | 112945-52-5 | 3 | 6 |

Notes:

- 1) This product is a liquid mixture and all powders are encapsulated.
- 2) Exposure values shown for guidance only. Please follow applicable regulations.

3. HAZARDS IDENTIFICATION

Emergency Overview: Causes irritation to eyes, skin, and respiratory and digestive tracts.

Eye Contact: May cause eye irritation and swelling.

Skin Contact: May cause irritation and sensitization. Symptoms can be immediate or delayed several hours.

Inhalation Acute: Vapors may cause irritation and temporary or permanent sensitization.

Ingestion Acute: May cause irritation to mouth, esophagus, and stomach.

Physical: Spilled material is tacky, slippery, and difficult to remove from skin.

Other: Pre-existing skin sensitization may be aggravated by exposure to this product.

HMIS:

| | |
|----------------------|---|
| Health: | 2 |
| Flammability: | 1 |
| Reactivity: | 0 |
| Personal Protection: | H |

4. FIRST AID MEASURES

Eye Exposure:

Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek immediate medical attention, preferably with an ophthalmologist. If a physician is not immediately available, eye irrigation should be continued for an additional 15 minutes.

Skin Exposure:

Immediately wipe excess material off skin with a dry cloth then wash with plenty of soap and water for at least 5 minutes. See medical attention if irritation develops or persists. Remove contaminated clothing and shoes and clean thoroughly before re-use.

Inhalation:

Remove from immediate source of exposure and assure that victim is breathing. If not breathing, administer cardio-pulmonary resuscitation (CPR). If breathing is difficult, administer oxygen if available. Seek medical attention. Symptoms can be delayed several hours.

Ingestion:

If swallowed, do not induce vomiting. If victim is conscious and alert, give 1-2 glasses of milk or water to drink. Do not give anything by mouth to an unconscious person. Seek medical attention immediately. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist. Vomiting may occur spontaneously. If vomiting occurs and the victim is conscious, give additional milk or water to further dilute the chemical.

Medical Conditions Possibly Aggravated by Exposure:

Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

5. FIRE FIGHTING MEASURES

| | |
|--|---|
| Flash Point: | > 300 °F (closed cup) |
| Flammable Limits: | Not available. |
| Auto-Ignition Temperature: | Not available. |
| Extinguishing Media: | Use carbon dioxide, dry chemical, or appropriate foam. |
| Special Fire Fighting Procedures: | Firefighters should wear NIOSH/MSHA approved positive pressure breathing apparatus with full face-piece and full chemical resistant protective clothing. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later. Extreme heat or water contamination may cause closed containers to explode. |

6. ACCIDENTAL RELEASE MEASURES

| | |
|-----------------------------|---|
| Personal Protection: | Wear chemical goggles, body-covering protective clothing, chemical resistant gloves, and rubber boots. Use NIOSH approved respirator where mist occurs. |
| Spill Cleanup: | Mop up liquid and dispose in accordance with federal, state and local regulations or permits. Flush area with solvent then water to complete cleanup. |

7. HANDLING AND STORAGE

| | |
|------------------|---|
| Handling: | Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Keep container closed. Promptly clean residue from closures with cloth and solvent. Promptly clean up spills. |
| Storage: | Store at room temperature in a dry, well ventilated area, away from combustible material, and away from ignition sources. Keep containers closed. Store in clean plastic or steel containers. |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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|--------------------------------|---|
| Engineering Controls: | Normal ventilation for good working conditions should be used. Keep containers closed. Safety shower and eyewash fountain should be within direct access. |
| Respiratory Protection: | This product is not considered respirable in either the liquid or cured forms. However, if the cured product is polished, ground or chipped during processing, handling or use, powders may be released as airborne respirable particles. In these instances, appropriate personal protection equipment and local ventilation controls must be employed. If exposure limits are exceeded and local ventilation is unavailable, a supplied-air respirator or a self-contained NIOSH-approved vapor respirator is required. |
| Skin Protection: | Wear body-covering protective clothing and gloves. |
| Eye Protection: | Wear chemical goggles or face shield. |

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and chemical here represent typical properties of this product. Contact Technical Sales for exact specifications.

| | |
|--------------------------------|-------------------|
| Appearance: | Paste |
| Color: | Grey |
| Odor: | Slight Epoxy Odor |
| pH: | N/D |
| Specific Gravity, g/cc | 1.9 |
| Water Solubility: | Insoluble |
| Boiling Point: | Not available |
| Vapor Pressure (mm Hg): | < 1 @ 25 °C |
| Vapor Density (air=1): | > 1 |
| VOC Content, g/l: | 0.00 |

10. STABILITY AND REACTIVITY

Chemical Stability: This material is stable under normal conditions of use and storage.
Conditions to Avoid: Storage temperatures above 100 °C
Hazardous Polymerization: Will not occur.
Hazardous Decomposition Materials: Carbon monoxide, carbon dioxide, and other organic substances.

11. TOXICOLOGICAL INFORMATION

Epoxy Resins: Acute Oral LD₅₀ (Rat): 11.4 g/kg
Acute Dermal LD₅₀ (Rabbit): > 20 g/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity: Not tested
Environmental Fate: Not tested

13. DISPOSAL CONSIDERATIONS

Disposal: Keep out of surface waters, sewers, and waterways entering or leading to surface waters. Notify authorities if any exposure to the environment occurs or is likely to occur. Utilize an appropriate disposal facility, in compliance with federal, state and local environmental control regulations.

14. TRANSPORTATION INFORMATION

DOT UN Status: The material is not a regulated hazardous material for transportation.

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Sections 302, 304, 313: This product does not contain any substances reportable under these sections.

Sections 311, 312:

| <u>Hazard Classes</u> | <u>Yes/No</u> |
|-----------------------|---------------|
| Fire Hazard | No |
| Reactivity Hazard | No |
| Pressure Hazard | No |
| Immediate Hazard | Yes |
| Delayed Hazard | No |

| <u>International Inventory</u> | <u>Status</u> |
|--------------------------------|---------------|
| Canada (DSL) | Yes |
| Europe (EINECS/ELINCS) | Yes |
| Australia (AICS) | Yes |
| Japan (MITI) | Yes |
| South Korea (KECL) | Yes |

16. OTHER INFORMATION

NFPA: Health: 2
Flammability: 1
Reactivity: 0

Key Legend Information

| | |
|------------------|--|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| ARD | International Agency for Research on Cancer |
| CAS | Chemical Abstract Service |
| CERCLA | Comprehensive Environmental Response, Compensation & Liability Act |
| DSL | Domestic Substance List |
| HMIS | Hazardous Materials Identification System |
| ND | Not Determined |
| NE | Not Established |
| NFPA | National Fire Protection Association |
| NIOSH | National Institute for Occupational Safety & Health |
| NTP | National Toxicology Program |
| OSHA | Occupational Safety and Health Administration |
| PEL | Permissible Exposure Limit |
| RTECS | Registry of Toxic Effects of Chemical Substances |
| SARA | Superfund Amendments & Reauthorization Act |
| SARA Title III | Emergency Planning & Community Right to Know Act |
| SARA Section 302 | Extremely Hazardous Substances |
| SARA Section 304 | Emergency Release |
| SARA Section 311 | MSDS/List of Chemicals & Hazardous Inventory |
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| SARA Section 313 | Toxic Chemicals & Release Reporting |
| STEL | Short Term Exposure Limit |
| TLV | Threshold Limit Value |
| TWA | Time Weighted Average |

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