

TO: MARK



Product Data

8/05: 6006

NO. T-36 REFRACTORY CEMENT

Classification: Wet, High Strength, High Alumina Mortar

Physical Properties: (Typical)

	<u>English Units</u>	<u>SI Units</u>
Maximum Temperature	3200°F	1760°C
Refractoriness Test 3100°F (1704°C) Test Temperature	(No Softening or Flowing)	
Quantity Required per Square Foot (305x305mm) For a 1/2" (13mm) Thickness	6 1/4 lb	2.8 kg
Quantity Required to Lay 1,000 9 x 4 1/2 x 2 1/2" (229x114x63mm) Brick Dipping Consistency	425 lb	193 kg
Water Required Volume per 100 pounds (45.4 kg) For Laying Brick	Approximately	
Troweling Consistency	<u>Gal (U.S.)</u> 1/4	<u>Liters</u> 0.9
Dipping Consistency	1 1/4	4.7
Modulus of Rupture On KX-99 Brick with Ends Bonded Together Using Mortar in Trowelling Consistency	Approximately	
At 220°F (105°C)	<u>lb/in²</u> 800	<u>MPa</u> 5.5
After 1500°F (815°C)	550	3.8
Water Retention A.R.I. Technical Bulletin No. 60	(Minimum of 2 Minutes)	
Particle Size Retained on 20 Mesh Screen	Less Than 0.5%	
Retained on 35 Mesh Screen	Less Than 5.0%	

(Continued)



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NO. T-36 REFRACTORY CEMENT (Continued)

Chemical Analysis: (Approximate)
(Calcined Basis)

Silica	(SiO ₂)	39.4%
Alumina	(Al ₂ O ₃)	55.2
Titania	(TiO ₂)	2.0
Iron Oxide	(Fe ₂ O ₃)	1.1
Lime	(CaO)	0.2
Magnesia	(MgO)	0.2
Alkalies	(Na ₂ O+K ₂ O)	1.9

The test data shown are based on average results on production samples and are subject to normal variation on individual tests. The test data cannot be taken as minimum or maximum values for specification purposes. ASTM test procedures used when applicable.

Description: No. T-36 Refractory Cement is a wet, air-setting, thick patching mortar for temperatures up to 3200°F (1760°C). This mortar can be used as a patching material, a coating, and for bonding brick. Applications include: boilers, brick plants, steel mini-mills, aluminum furnaces, asphalt plants, iron foundries, and tunnel kiln cartops.

7/03/97 Dev.



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1 Identification of substance

Product details

Trade name: **NO. T-36 REFRACTORY CEMENT**

Manufacturer/Supplier:
ANH Refractories Company
400 Fairway Drive
Moon Township, PA 15108

General Phone: (412)375-6600

Information department: MSDS Technical Information: (412) 375-6837
Emergency information: CHEMTREC 24 HOUR EMERGENCY PHONE NUMBER: 1-800-424-9300.

2 Composition Data on components

Chemical characterization

Description: Mixture of the substances listed below with nonhazardous additions.

Components:

1302-93-8	alumina silicate	20-30%
1344-09-8	Silicic acid, sodium salt	20-30%
1302-76-7	alumina silicate (kyanite)	10-20%
14464-46-1	crystalline silica (cristobalite)	10-20%
14808-60-7	crystalline silica (quartz)	10-20%
7631-86-9	silicon dioxide, chemically prepared	1-2.5%

Additional information: For the wording of the listed risk phrases refer to section 16.

3 Hazards identification

Hazard description:

Toxic

Medical conditions aggravated by exposure to the product: Asthma, chronic lung disease, and skin irritation.

Carcinogenicity Information:

Crystalline silica is listed by IARC as a Group 1 Carcinogen "sufficient evidence of carcinogenicity in humans", and is listed by NTP as K, "Known To Be A Human Carcinogen".

Information pertaining to particular dangers for man and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

May cause cancer by inhalation.

Irritating to eyes, respiratory system and skin.

Danger of serious damage to health by prolonged exposure.

NFPA ratings (scale 0-4)



Health = 1
Fire = 0
Reactivity = 0

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HMIS Classification

HEALTH	*1
FIRE	0
REACTIVITY	0

Health: *1
Flammability: 0
Reactivity: 0

4 First aid measures

- After inhalation: Move to fresh air; consult doctor if needed.
- After skin contact: Immediately wash with water and soap and rinse thoroughly.
- After eye contact: Flush eyes with water for 15 minutes. If irritation persists, consult a doctor.
- After swallowing:
This product is intended for industrial applications; in the unlikely event that this product is swallowed, consult a physician if any adverse medical conditions occur.

5 Fire fighting measures

- Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Protective equipment: No special measures required.

6 Accidental release measures

- Person-related safety precautions: Not required.
- Measures for environmental protection: No special measures required.
- Measures for cleaning/collecting:
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

7 Handling and storage

- Handling:
• Information for safe handling:
Ensure good ventilation/exhaust at the workplace.
Prevent formation of dust.
• Information about protection against explosions and fires: Keep respiratory protective device available.
- Storage:
• Requirements to be met by storerooms and containers: No special requirements.
• Information about storage in one common storage facility: Not required.
• Further information about storage conditions: Store product inside, out of extreme weather conditions.

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8 Exposure controls and personal protective equipment	
Components with limit values that require monitoring at the workplace:	
14464-46-1 crystalline silica (cristobalite)	
PEL	1/2 the value calculated from the respirable dust
REL	0.05* mg/m ³
	*Respirable dust
TLV	0.05 R mg/m ³
14808-60-7 crystalline silica (quartz)	
REL	0.05* mg/m ³
	*Respirable dust
TLV	0.05 R mg/m ³
1332-58-7 hydrous alumina silicate	
PEL	15*; 5** mg/m ³
	*Total dust **Respirable fraction
REL	10**; 5** mg/m ³
	*Total dust **Respirable fraction
TLV	2 R mg/m ³
	(e)

- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
- **Breathing equipment:**



NIOSH approved respirators should be used if dust is present. A respiratory protection program should be implemented if exposures exceed OSHA PELs.

- **Protection of hands:**



Protective gloves recommended

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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• Eye protection: Safety glasses with side shields recommended

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9 Physical and chemical properties

• General Information

Form: Solid
 Color: According to product specification
 Odor: No specific odor.

• Change in condition
 Melting point/Melting range: Undetermined.
 Boiling point/Boiling range: Undetermined.

• Flash point: Not applicable.
 • Auto igniting: Product is not selfigniting.
 • Danger of explosion: Product does not present an explosion hazard.
 • Density: Not determined.
 • Solubility in / Miscibility with Water: Insoluble.

10 Stability and reactivity

• Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
 • Dangerous reactions: No dangerous reactions known.
 • Dangerous products of decomposition:
 Refractories containing crystalline silica may, after service, contain more or less crystalline silica. Care must be taken to avoid and/or control dust from demolition. If in doubt of the proper protection, seek advice from a safety professional.

11 Toxicological information

• Acute toxicity:
 • LD/LC50 values that are relevant for classification:
 7631-86-9 silicon dioxide, chemically prepared
 Oral LD50 10000 mg/kg (rat)
 • Primary acute effects:
 • Skin contact: Irritant to skin and mucous membranes.
 • Eye contact: Irritating effect.
 • Sensitization: No sensitizing effects known.
 • Additional toxicological information:
 The product shows the following dangers according to internally approved calculation methods for preparations:
 Irritant

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Carcinogenic if inhaled.

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12 Ecological information

General notes: At present there are no ecotoxicological assessments.

13 Disposal considerations

Recommendation for Disposal of Product: As sold, this product is not RCRA hazardous. Final used condition must be evaluated prior to disposal. Disposal of waste product in accordance with Federal, State and Local regulations. Dust created during demolition of used product may contain crystalline silica. Recommendation for Disposal of Uncleaned Packaging: Reuse, recycle or treat as industrial waste.

14 Transport information

Transport/Additional information: Not dangerous according to available information.

15 Regulation

SARA 313 TOXIC CHEMICALS

No material listed in the components in Section 2 of this MSDS is on the SARA 313 list.

SARA 302 EXTREMELY HAZARDOUS SUBSTANCES

No material listed in the components in Section 2 of this MSDS is on the SARA 302 list.

TSCA (Toxic Substances Control Act)

This substance or all the ingredients of this product are on the Chemical Substances Inventory of the Toxic Substances Control Act (TSCA Inventory). The presence on this list does not require any legal reporting.

WHMIS Classification

Class D - Division 2 - Sub Division A

Untested mixture containing a very toxic material

Class D - Division 2 - Sub Division B

Untested mixture containing a toxic material

Class E - Untested mixture containing corrosive material

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Carcinogeny categories

EPA (Environmental Protection Agency)

None of the ingredients is listed.

IARC (International Agency for Research on Cancer)

1464-46-1 crystalline silica (cristobalite) 1

14808-60-7 crystalline silica (quartz) 1

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<p>• NTP (National Toxicology Program)</p>		
14464-46-1	crystalline silica (cristobalite)	R
14808-60-7	crystalline silica (quartz)	R
<p>• TLV (Threshold Limit Value established by ACGIH)</p>		
14808-60-7	crystalline silica (quartz)	A2
1332-58-7	hydrrous alumina silicate	A4
<p>• MAK (German Maximum Workplace Concentration)</p>		
14464-46-1	crystalline silica (cristobalite)	1
14808-60-7	crystalline silica (quartz)	1
<p>• NIOSH-Ca (National Institute for Occupational Safety and Health)</p>		
14464-46-1	crystalline silica (cristobalite)	
14808-60-7	crystalline silica (quartz)	
<p>• OSHA-Ca (Occupational Safety & Health Administration)</p>		
<p>None of the ingredients is listed.</p>		
<p>• Classification according to EU-guidelines</p>		
<p>• Hazard symbols: Toxic</p>		
<p>• Hazard-determining components of labeling: crystalline silica (cristobalite) crystalline silica (quartz)</p>		
<p>• Risk phrases: May cause cancer by inhalation. Irritating to eyes, respiratory system and skin. Danger of serious damage to health by prolonged exposure.</p>		
<p>• Safety phrases: Avoid exposure - obtain special instructions before use. When using do not eat or drink. Do not breathe dust. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of soap and water Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately. This material and its container must be disposed of as hazardous waste.</p>		
<p>• National regulations:</p>		
<p>The following ingredients are known in the state of California to be a cancer risk (Proposition 65):</p>		
14464-46-1	crystalline silica (cristobalite)	
14808-60-7	crystalline silica (quartz)	

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16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Contact: Patricia A. Kott 412-375-6712
- Creation date: 08/14/2000

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