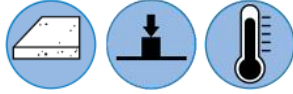


HARD-ROK JET PATCH



Product Description

HARD-ROK JET PATCH is a polymer modified portland cement blend of specialty aggregates and admixtures providing a rapid setting, high strength, durable concrete repair for use on airport runways, taxiways, concrete floors, highway pavements, bridge decks and other applications requiring early resumption of traffic or use. JET PATCH is formulated to meet the requirements of ASTM C928 Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs. HARD-ROK JET PATCH is premixed, requiring only the addition of potable water. This unique mortar provides outstanding results and enables projects to be completed more rapidly than with conventional patching and repair materials.

General Uses & Applications

- Concrete repair applications such as bridge decks, concrete pavements and joints, airport runways and taxiways, industrial floors, loading docks, pre-stressed and pre-cast concrete
- Applications requiring rapid compressive strength gain

Advantages & Features

- High early strength with low permeability
- Freeze thaw resistant
- Thermal expansion and contraction similar to concrete
- Flowable and self-compacting
- Sulfate resistant

Availability: Adhesives Technology Corp. (ATC) HARD-ROK products are available through select distributors providing all your construction needs. Please contact ATC for a distributor near you or visit our website to search by zip code.

STANDARDS & APPROVALS

DOT Listed

(See ATC website for current list of Department of Transportation approvals throughout the United States)

Color & Ratio: Concrete Gray

Storage & Shelf Life: Store in unopened containers in cool and dry conditions. Store between 40 °F (4 °C) and 95 °F (35 °C).

Installation & Coverage: Manufacturer's Printed Installation Instructions (MPII) are available within this Technical Data Sheet (TDS). Due to occasional updates and revisions, always verify that you are using the most current version of the MPII. In order to achieve maximum results, proper installation is imperative.

Clean Up: Always wear appropriate protective equipment such as safety glasses and gloves. Clean uncured materials from tools and equipment using mild solvent. Cured material can only be removed mechanically.

Limitations & Warnings:

- Substrate and ambient temperature must be > 40 °F (4 °C)
- When work environment or substrate falls below 70 °F (21 °C), precondition product to 70 - 75 °F (21 - 24 °C) prior to use
- Maximum 3 in. (76 mm) layer neat, but no less than 1/2 in. depth
- For spalls > 3 in. (76 mm) add pea gravel - See MPII
- Do not re-temper after initial set
- Must be placed within 12 minutes after mixing
- Color variations may occur

Safety: Please refer to the Safety Data Sheet (SDS) for HARD-ROK JET PATCH published on our website or call ATC for more information at 1-800-892-1880.

Specification: The fast-set cementitious grout shall be a single component, rapid setting, high-strength, grout with an initial set time of 16 minutes per ASTM C266. At 28 days, the grout shall have a minimum compressive strength of 11,797 psi (81.3 MPa) per ASTM C109 and a flexural strength of 1,430 lb/ft³ (22,909 kg/M³) per ASTM C348. The product shall be HARD-ROK JET PATCH from Adhesives Technology Corp., Pompano Beach, Florida.

ORDERING INFORMATION

TABLE 1: HARD-ROK JET PATCH PACKAGING

Package Size	50 lb. Bag
Part #	HR-JP
Bag Weight (lb.)	50.4
Pallet Qty. (Bag)	56
Pallet Weight (lb.)	2,866



MATERIAL SPECIFICATION

TABLE 2: HARD-ROK JET PATCH Performance to ASTM STANDARDS^{1,2}

Property	Parameter	ASTM Standard	Units	Results
Set Time	Initial	C266	min	16
	Final			25
Compressive Strength	1 hr	C109	psi (MPa)	5,203 (35.9)
	1 day		psi (MPa)	7,621 (52.5)
	7 day		psi (MPa)	10,604 (73.1)
	28 day		psi (MPa)	11,797 (81.3)
Split Tension Strength	1 hr	C496	psi (MPa)	625 (4.3)
	1 day		psi (MPa)	803 (5.5)
	28 day		psi (MPa)	888 (6.1)
Flexural Strength	1 hr	C348	lb/ft ³ (kg/M ³)	1,030 (16,501)
	1 day		lb/ft ³ (kg/M ³)	1,430 (22,909)
	28 day			
Bond Strength (Slant Shear)	1 hr	C1042	lb-F (kN)	2,175 (9.7)
	1 day		lb-F (kN)	2,249 (10.0)
	28 day		lb-F (kN)	4,655 (20.7)
Flow	15 min	C928	%	100.0
Length Change	28 day	C157	%	0.04

1. Results based on testing conducted on a representative lot(s) of product. Average results will vary according to the tolerances of the given property.

2. Results based on pourable consistency of 12.8 % water by weight.

INSTALLATION INSTRUCTIONS (MPII)

PREPARATION

Surface – The concrete surface must be a minimum of 28 days old, sound, clean, free of debris and oil. Concrete must be shot blast, scarified or scaled to provide clean, freshly exposed aggregate. The concrete over which the HARD-ROK JET PATCH is to be installed must be saturated with water (saturated/surface-dry, or SSD) at the time of application. However, any freestanding water that has accumulated must be removed by compressed air or vacuuming. All concrete of poor quality that is in contact with reinforcing steel should be removed. Remove rust from exposed reinforcing steel by brushing or sandblasting prior to repairing with JET PATCH. Have all necessary tools and materials near work area to permit rapid and continuous placement of JET PATCH. **NOTE:** Feather-edging is not recommended. Refer to International Concrete Repair Institute publication No. 310.1R-2008 for further surface preparation suggestions.

MIXING HARD-ROK JET PATCH

Always use a clean mixing container. **Precondition product to approximately 70 °F (21 °C) and store in cool location until time of usage. Water should also be approximately 70 °F (21 °C).** It is recommended that no less than one bag is mixed at a time. Prior to mixing the first batch of HARD-ROK JET PATCH, wash out mixer and determine the number of bags to be mixed at one time. Mix only the amount of JET PATCH that can be placed in approximately 10 minutes. Add required amount of cold 70 °F (21 °C) water to a clean, 5 gallon (19 L) pail. **NOTE:** For a trowelable consistency, add 12 % water by weight, or 92 oz. (2.7 L) of water for a full 50 lb. bag. For a self-leveling or pourable consistency, add 12.8 % water by weight, or 98 oz. (2.9 L) of water for a full 50 lb. bag. Mix JET PATCH into water with a low rpm drill and mixing paddle as rapidly as possible but without dumping in the full bag. The actual mixing device shall have paddles / impellers capable of thoroughly blending stiff mortar (epoxy compound mixers have been found suitable). Mix the JET PATCH for 3 to 5 minutes or until a smooth uniform consistency with no lumps is achieved. **Do not use more water than indicated.** Excess water may cause bleeding, segregation and loss of structural properties of the product. Care should be exercised not to form a downward-flowing vortex causing entrapment of air, resulting in a porous surface.

HAND MIXING OF SMALL BATCHES: Place small quantity of water into a container, add HARD-ROK JET PATCH and mix by hand using a spoon or paddle, until desired consistency is achieved.

MIXING WITH PEA GRAVEL: For repairing depths of 1/2 in. to 3 in. (13 mm to 76 mm), HARD-ROK JET PATCH should be used as packaged. For depths of greater than 3 in. (76 mm), it is recommended that 3/8 in. (10 mm) pea gravel or pea stone be added to the JET PATCH. Due to the nature of JET PATCH, the addition of 3/8 in. (10 mm) aggregate as specified below does not substantially affect performance or consistency, but will result in yield increase of approximately 40%. Follow basic mixing procedures for JET PATCH as modified below:

- Choose a clean (free of organic material) well-graded 3/8 in. (10 mm) aggregate
- Soak in clean water for approximately 24 hours prior to mixing with JET PATCH
- Drain off excess water prior to mixing. The total mixing water for the batch shall be reduced by the amount of free water found in the aggregate
- Follow normal mixing procedures for JET PATCH. After all water has been added and JET PATCH has come to uniform consistency, add approximately one 5 gallon (19 L) bucket of 3/8 in. (10 mm) aggregate for every two 50 lb. bags of JET PATCH
- Continue to mix until the aggregate is thoroughly dispersed throughout the JET PATCH

APPLICATION: Place the material immediately into thoroughly dampened area, at depths of not less than 1/2 in. (13 mm). Place from one side to the other, working material into sides and bottom of repair area to facilitate proper bonding. Screen and level to proper elevation of existing concrete. Excessive troweling is not required. **Under no circumstances should HARD-ROK JET PATCH be re-tempered using water or other additives.**

FINISH: As soon as HARD-ROK JET PATCH has reached final set, apply soaked burlap or pond exposed surfaces to inhibit rapid evaporation conditions due to high ambient temperature. When using this technique, delay application of cure/seal compound for 24 hours after final set or until surface has reached suitable moisture content for application.

Proper application is the responsibility of the user.

Safety Data Sheet
Hard-Rok Jet Patch

Created On: 03/10/2015
 Revision Date: 03/10/2015
 Version: 1.0

1. Product and Company Identification

Product Name: Hard-Rok Jet Patch

Product Use: Cementitious Product

Company Identification:
 ADHESIVES TECHNOLOGY CORP.
 450 East Copans Road
 Pompano Beach, FL 33064
 Contact Phone: 1.800.892.1880
 (9:00a.m. – 5:00p.m. EST)

Emergency Phone:
 Chem-Tel:
 1.800.255.3924 (24hrs)

2. Hazards Identification

GHS Classification

Health	Physical	Environmental
Skin Irritant Cat 2 Serious Eye Irritation Cat 2A Carcinogen Cat 1A STOT Single Cat 3	Not Classified	Not Classified

GHS Label:

Danger:



Serious Eye Irritation
 Skin Irritant



Carcinogen

Emergency Overview

Causes skin irritation
 Causes serious eye irritation
 May cause cancer
 May cause respiratory irritation
 Wash skin thoroughly after handling
 Avoid breathing fume/gas/mist/vapors/spray
 Wear protective gloves/ protective clothing/ eye protection/ face protection
 Use outdoors or in a well-ventilated area

Note: This product causes severe skin burns and eye damage when wet

Primary Route of Exposure

Eyes, skin, oral and inhalation

Carcinogenicity

This product or one of its ingredients present at 0.1% or more IS listed as a carcinogen or suspect carcinogen by NTP, IARC, Prop 65 or OSHA.

Safety Data Sheet Hard-Rok Jet Patch

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3. Composition/ Information on Ingredients

<u>CAS Number</u>	<u>Content%</u>	<u>Chemical Name</u>
65997-15-1	80 – 100	Portland Cement
13397-24-5	0.1 – 5	Calcium Sulfate
14808-60-7	0.1 – 5	Crystalline Silica
65997-16-2	0.1 – 5	Aluminum Cement

4. First Aid Measures

Inhalation: Move to fresh air; give oxygen if breathing is difficult. Call a physician if symptoms persist.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Call a physician if symptoms persist.

Skin: Remove contaminated clothing. Wash with mild soap and water. Get medical attention if skin irritation or dermatitis persists.

Ingestion: Give plenty of water. DO NOT induce vomiting. Call a physician immediately.

Other: Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure. If sensitization occurs, future contact with the material should be avoided.

5. Fire Fighting Measures

Flash Point: N/A

Flammable Limits: N/A

Extinguisher Media

Carbon Dioxide, Dry Chemical, Water Fog

Unusual Fire and Explosion Hazard

None known. Thermal Decomposition can be formed.

Special Fire Fighting Procedures

Firefighters must wear self-contained breathing apparatus and full protective clothing to prevent contact with toxic and/or irritating fumes.

6. Accidental Release Measures

Personal Precautions:

Avoid all personal contact. In enclosed areas, cleanup personnel should wear self-contained breathing apparatus.

Environmental Precautions

Cover spills with sawdust, vermiculite, or other absorbent material to minimize spreading of the material before collecting.

7. Handling and Storage

Safety Data Sheet
Hard-Rok Jet Patch

Created On: 03/10/2015
 Revision Date: 03/10/2015
 Version: 1.0

Handling: Avoid contact with eyes, skin and clothing. Avoid inhalation of vapors. Use with adequate ventilation. Use appropriate personal protection equipment (Section 8). Wash thoroughly after handling.
Storage: Store in a cool dry place away from direct sunlight. Keep from freezing. Recommended storage temperature range in between 4 °C and 35 °C (40°F and 95° F).

8. Exposure Control and Personal Protection

Exposure Guidelines

Component	CAS#	OSHA PEL	TLV
Portland Cement	65997-15-1	15 mg/m ³	1 mg/m ³
Quartz Silica Sand (Crystalline Silica)	14808-60-7	0.1 mg/m ³	0.025 mg/m ³
Calcium Sulfate	13397-24-5	15 mg/m ³	0.05 mg/m ³
Aluminum Cement	65997-16-2	5ppm	5ppm

Engineering Measures: Use local and general exhaust ventilation to maintain airborne concentrations below TLV. Suitable respiratory equipment should be used in cases of insufficient ventilation or where operational procedures demand it.

Personal Protective Equipment

Respiratory Protection

None normally required. Use a NIOSH approved organic vapor chemical cartridge respirator when air movement is inadequate to control vapor build-up.

Eye/Face Protection

Wear splash proof chemical goggles/ full face shield if there is a potential for splashing.

Skin / Body Protection

Wear Suitable gloves (neoprene, nitrile rubber or PVC) and protective clothing to mitigate exposure.

Other Protective Clothing or Equipment

Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant.

9. Physical and Chemical Properties

Appearance: Grey powder
 Evaporation Rate: N/A
 Odor: Cement like
 Solubility in Water: Negligible
 Specific Gravity(g/cc): 2.7 - 3.0
 Vapor Density(air = 1): N/A
 Vapor Pressure: N/A
 VOC Content: N/A

Safety Data Sheet Hard-Rok Jet Patch

Created On: 03/10/2015

Revision Date: 03/10/2015

Version: 1.0

pH:	12 (when wet)
Boiling Point:	N/A

10. Stability and Reactivity

Stability:	Stable
Thermal Decomposition:	Can yield CO, CO ₂ and organic Nitrogen compounds.
Incompatibility:	Strong acids, peroxides, and other oxidizing agents
Conditions to avoid:	Exposure to excessive heat and storage above 35°C (95°F) will shorten shelf life.

11. Toxicological Information

Acute Oral Toxicity:
Not Determined

Acute Dermal Toxicity:
Not Determined

Acute Inhalation Toxicity:
Not Determined

Skin Irritation:
Irritating

Note: This product causes severe skin burns and eye damage when wet

The product has not been tested. The statement has been derived from the properties of the individual components.

Eye Irritation:
Serious irritation to eyes.

Note: This product causes severe skin burns and eye damage when wet

The product has not been tested. The statement has been derived from the properties of the individual components.

Respiratory Irritation:
Inhalation of vapors or mists may cause irritation to the respiratory system.

Sensitization:
May cause allergic skin reaction and irritation to the respiratory system.
The product has not been tested. The statement has been derived from the properties of the individual components.

Carcinogenicity Classification:
Quartz Silica Sand (Crystalline Silica):
IARC Group1: Known human carcinogen based on human evidence.

Safety Data Sheet
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NTP (National Toxicology Program) has classified Crystalline Silica as a known human carcinogen.

12. Ecological Information

At the present state of knowledge, no negative ecological effects are expected. Past experiences have shown this material to have no harmful effect on the environment.

13. Disposal Considerations

If the material as supplied becomes a waste, dispose in accordance with federal, state and local regulations.

14. Transportation Information

Not regulated

15. Regulatory Information

HMIS Rating	
Health	*1
Flammability	0
Physical Hazard	0
PPE	E



Hazard Rating: 0 = minimal, 1 = Slight, 2 = moderate, 3 = severe, 4 = extreme

Federal Regulations

SARA Title 311/312

CA Prop 65

TSCA

State Regulations:

State RTK
 NJ, MA, PA

CAS#
 65997-15-1

Chemical Name
 Portland Cement

Chronic Health Hazard

This product contains a chemical or chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Listed



Safety Data Sheet
Hard-Rok Jet Patch

Created On: 03/10/2015
Revision Date: 03/10/2015
Version: 1.0

14808-60-7

Quartz Silica Sand (Crystalline Silica)

16. Other Information

Hazard Communication: This SDS has been prepared in accordance with the federal OSHA Hazard Communication Standard

To the best of our knowledge, the information contained herein is accurate. However, Adhesives Technology Corp. does not assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Additional information is available upon request.