



Swiftset
Rapid Setting Repair Mortar

DESCRIPTION

Swiftset is a rapid setting, rapid hardening concrete patching material designed for horizontal, vertical and overhead applications. **Swiftset** is a blend of portland cement, selected aggregates and proprietary admixtures. **Swiftset** has been specifically formulated to provide excellent workability while demonstrating similar physical characteristics to the concrete substrate. This property allows for the even distribution of stresses placed on the repair by dynamic loading and freeze/thaw conditions.

USES

Swiftset is ideal for a wide variety of concrete surface repairs:

- Precast concrete products
- Tilt-up panels
- Curbs
- Steps
- Columns
- Sidewalks

BENEFITS

- Resistant: Withstands freeze/thaw cycles
- Versatile: Horizontal, vertical and overhead
- Performance: Excellent flexural, tensile and compressive strengths
- Consistent: Strict Quality Control testing and standards

STANDARDS

Swiftset meets and exceeds the requirements of ASTM C928 R2.

SURFACE PREPARATION

All surfaces in contact with **Swiftset** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends that the area to be patched should be saturated for 24 hours before placement. Remove any standing water. Surface should be saturated surface dry (SSD). For best results, scrub some of the mixed components into the prepared surface. Do not allow scrub coat to fully dry before placement. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 3.5–4.0 quarts of cool, clean potable water per 50 lb (22.7 kg) bag in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes to achieve desired consistency. Mix only enough material that can be placed within working time. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Swiftset should be placed upon completion of mixing. Place material consistently, avoiding any air entrapment. Trowel material onto the surface to be repaired, ensuring all pores and voids are filled. Force material against edge of repair, working away from center. After leveling, the patch can be troweled, brushed or broomed to the desired finish. When material has reached the proper set, it can be shaved, shaped or molded with a steel trowel. Multiple lifts can be applied. Each lift should be between 1/8" and 2" thick. Profile or roughen each lift to ensure a good bond.

FINISHING & CURING

Follow standard ACI curing practices. Exposed surfaces should be cured with a membrane forming compound.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before use of this product. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.



Swiftset
Rapid Setting Repair Mortar

PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Swiftset** with 4.0 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results			
Compressive Strength ASTM C109	3 Hours 3,000 psi (20.68 MPa)	1 Day 4,000 psi (27.58 MPa)	7 Days 5,000 psi (34.47 MPa)	28 Days 6,000 psi (41.37 MPa)
Rate of Set ASTM C266		Working Time .24	Initial .37	Final .50
Flexural Strength ASTM C78			7 Days 1,000 psi (6.89 MPa)	
Density ASTM C138				133 lb/ft ³ (2,130 kg/m ³)
Length Change ASTM C157		28 Days Air (-0.05%)		28 Days Water (+0.03%)
Modulus of Elasticity ASTM C469			2.93 $\times 10^6$ @ 28 days (20.15 GPa)	
Freeze/Thaw Resistance* ASTM C666	F/T Cycles 300		Durability 96%	
Scaling Resistance ASTM C672		Age 25 Cycles	Scaled Material .005 kg/m ²	
Bond Strength ASTM C882		1 Day 1,500 psi (10.34 MPa)	7 Days 2,500 psi (17.23 MPa)	
Coefficient of Thermal Expansion CRD C39			7.4 $\times 10^{-6}$ in/in°F (13.3 $\times 10^{-6}$ cm/cm°C)	
Corrosion Resistivity		Swiftset tested compatible with Vector™ Corrosion Technologies Galvashield® embedded galvanic anodes.		

*3.75 quart water ratio

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

Exclusively manufactured for Janell Inc. by US SPEC of Denver, CO.

Contact your Janell representative for the most current product information. Always read and follow the warnings and instructions on the most current technical data sheets.



JANELL

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Lexington, KY: 859-254-9111

NOTICE OF LIMITED WARRANTY US MIX Co. (manufacturer) warrants to buyer that this product at the time and place of shipment is of good quality and conforms to the manufacturer's specifications in force on the date of manufacture when used in accordance with the instructions hereon. Manufacturer cannot warrant or guarantee any particular method of use, application or performance of the product under any particular condition. This limited warranty cannot be extended or amended by manufacturer's sales people, distributors or representatives or by any sales information, specifications of anyone other than the manufacturer. Liability under this warranty is expressly limited to refund of the purchase price. See product packaging for complete limitation of warranties and liability.

Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 4.0 quarts mixing water is used.


Polymer-Modified, Fiber Reinforced Repair Mortar

DESCRIPTION

Repairer is a fast setting, deep patching compound fortified with mini-fibers that exhibit high early compressive strengths as well as excellent abrasion and freeze/thaw resistance. **Repairer** is a blend of portland cement, high performance polymers, selected aggregates and proprietary admixtures. **Repairer** offers superior resistance to de-icing salts, petroleum products and other chemicals prevalent on concrete roadways. In addition, **Repairer** will not rust or corrode reinforcing steel under moist, humid conditions.

USES

Repairer is ideal for a wide variety of concrete repairs:

- Highways
- Bridge decks
- Pavements
- Airport runways
- Warehouse floors
- Industrial plants

BENEFITS

- Resistant: Withstands freeze/thaw cycles and corrosive elements
- Rapid Set: High early strength, open to traffic in as little as 1 hour
- Performance: Excellent compressive strengths
- Consistent: Strict Quality Control testing and standards

STANDARDS

Repairer meets and exceeds the requirements of ASTM C928 R3.

SURFACE PREPARATION

All surfaces in contact with **Repairer** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Saw cut the perimeter of the area being patched into a square with a minimum depth of 1/2". Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends the area to be patched should be saturated for 24 hours before placement. Remove any standing water. Surface should be saturated surface dry (SSD). For best results, scrub some of the mixed components into the prepared surface. Do not allow scrub coat to fully dry before placement. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 3.5 quarts of cool, clean potable water per 50 lb (22.7 kg) bag in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. For placements greater than 3" depth, **Repairer** must be extended 30% by weight of powder, with clean, washed and dried 3/8" (1 cm) pea gravel. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Repairer should be placed upon completion of mixing. Place material consistently, avoiding any air entrapment. Pour material into prepared sawcut area, ensuring that all pores and voids are filled. Force material against edge of repair, working away from center. Screed or float to the level of the surrounding concrete, then trowel, brush or broom to the desired finish.

FINISHING & CURING

Follow standard ACI curing practices. Exposed surfaces should be cured with a membrane forming compound.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before use of this product. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.

PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Repairer** with 3.5 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results			
Compressive Strength ASTM C109	3 Hours 3,500 psi (24.13 MPa)	1 Day 5,000 psi (34.47 MPa)	7 Days 6,000 psi (41.36 MPa)	28 Days 7,000 psi (48.26 MPa)
Rate of Set ASTM C266	Working Time :20	Initial .30	Final 1:05	
Density ASTM C138		129 lb/ft ³ (2,066 kg/m ³)		
Length Change ASTM C157	28 Days Air (-)0.02%	28 Days Water (+)0.02%		
Modulus of Elasticity ASTM C469		3.64 x 10 ⁶ @ 28 days (25.07 GPa)		
Freeze/Thaw Resistance ASTM C666	F/T Cycles 300	Durability 97%		
Scaling Resistance ASTM C672	Age 25 Cycles	Scaled Material .02 kg/m ²		
Bond Strength ASTM C882	1 Day 2,000 psi (13.79 MPa)	28 Days 2,500 psi (17.24 MPa)		
Flow ASTM C1437	Time 5 Minutes	Flow 124%		
Coefficient of Thermal Expansion CRD C39		5.0 x 10 ⁻⁶ in/in°F (9.0 x 10 ⁻⁶ cm/cm°C)		
Corrosion Resistivity	Repairer tested compatible with Vector™ Corrosion Technologies Galvashield® embedded galvanic anodes.			

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

 **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

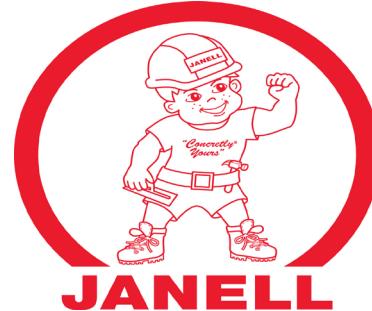
FIRST AID

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MANUFACTURER/TECHNICAL SERVICE

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Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 3.5 quarts mixing water is used.



DESCRIPTION

Repairer F-1 is a one-component, dry polymer-modified blend of portland cement, selected aggregates and proprietary admixtures designed for repairs from feather edge to 1" in interior and exterior applications. **Repairer F-1** develops a tenacious bond to concrete surfaces and will accept foot traffic in 10-12 hours.

USES

Repairer F-1 is ideal for a wide variety of concrete surface repairs:

- Precast concrete products, tilt-up panels, curbs, steps, columns, sidewalks, driveways, concrete walls
- Patch repair mortar for spalled and older concrete
- Fill in pits, voids and defects in concrete and masonry

BENEFITS

- Thermal expansion similar to concrete
- Color: Consistent color match for concrete
- Interior and exterior applications
- Dry polymer modified: Just add water
- Non-corrosive: Will not rust
- Consistent: Strict Quality Control testing and standards

SURFACE PREPARATION

All surfaces in contact with **Repairer F-1** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends the area to be patched should be saturated for 24 hours before placement. Remove any standing water. Surface should be saturated surface dry (SSD). For best results, scrub some of the mixed components into the prepared surface. Do not allow scrub coat to fully dry before placement. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5R. Pre-wet mixer and empty excess water. Place 4.5 quarts of cool, clean potable water per 50 lb (22.7 kg) bag in mixer, depending on desired consistency being plastic or flowable, then add dry material. Mix on low RPM for a total of 3 to 5 minutes until a homogenous mixture is achieved. Mix only enough material that can be placed within working time. For placements greater than 1" depth **Repairer F-1** must be extended by up to 30% by weight of powder, with clean, washed and dried 3/8" (1 cm) pea gravel. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Repairer F-1 should be placed upon completion of mixing. Place material consistently, avoiding any air entrapment. Trowel material onto the surface to be repaired, ensuring all pores and voids are filled. Force material against edge of repair, working away from center. After leveling, the patch can be troweled, brushed or broomed to the desired finish. When material has reached the proper set, it can be shaved, shaped or molded with a

PLACING (continued)

steel trowel. Multiple lifts can be applied. Each lift should be applied no more than 1" depth. Profile or roughen each lift to ensure a good bond. Scree or float to finished elevation.

FINISHING & CURING

Follow standard ACI curing practices. Exposed surfaces should be cured with a membrane forming compound.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before use of this product. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.


Repairer F-1
Polymer-Modified, Feather-to-1", Repair Mortar
PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent Repairer F-1 with 4.5 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results			
Compressive Strength ASTM C109	1 Day 2,500 psi (17.23 MPa)	3 Days 3,000 psi (20.68 MPa)	7 Days 4,000 psi (27.57 MPa)	28 Days 4,500 psi (31.02 MPa)
Rate of Set ASTM C266	Working Time :30	Initial :50	Final 1:20	
Flexural Strength ASTM C78	7 Days 1,000 psi (6.89 MPa)	28 Days 1,500 psi (10.34 MPa)		
Length Change ASTM C157	28 Days Air (-) .07%	28 Days Water (+) .05%		
Modulus of Elasticity ASTM C469	2.22×10^6 @ 28 days (15.3 GPa)			
Scaling Resistance ASTM C672	Age 25 Cycles	Scaled Material .004/ kg/m ²	Visual Rating 0	
Bond Strength ASTM C882	1 Day 1,000 psi (6.89 MPa)	7 Days 1,500 psi (10.34 MPa)	28 Days 2,500 psi (17.23 MPa)	
Coefficient of Thermal Expansion CRD C39	7×10^{-6} in/in°F (13×10^{-6} cm/cm°C)			
Corrosion Resistivity	Repairer F-1 tested compatible with Vector™ Corrosion Technologies Galvashield® embedded galvanic anodes.			

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.


WARNING: Cancer and Reproductive Harm -
www.P65Warnings.ca.gov .

FIRST AID

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MANUFACTURER/TECHNICAL SERVICE

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Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 4.5 quarts mixing water is used.

**DESCRIPTION**

Repairer VOR, CI is a one-component, dry polymer-modified, portland cement mortar. **Repairer VOR, CI** is a fast setting patching material for vertical and overhead repairs for applications up to 2" in depth. **Repairer VOR, CI** utilizes a low solubility corrosion inhibitor to extend service-life of reinforced structures reducing absorption and chloride ion permeability. **Repairer VOR, CI** exhibits superior workability by maintaining a non-sag consistency for easy molding and shaping.

USES

Repairer VOR, CI is ideal for a wide variety of vertical and overhead concrete repairs:

- Parking structures
- Bridge structures
- Docks and piers
- Tunnels
- Vertical precast concrete products
- Tilt-up panels
- Columns
- Concrete walls
- Interior or exterior applications

BENEFITS

- Resistant: Withstands freeze/thaw cycles
- Rapid Set: 20 minutes
- Versatile: Horizontal, vertical and overhead
- Performance: Excellent flexural, tensile and compressive strengths
- Corrosion Inhibitor: Effectively reduces corrosion rate of steel reinforcement
- Low Permeability: Reduces potential for corrosion
- Consistent: Strict Quality Control testing and standards

STANDARDS

Repairer VOR, CI meets and exceeds the requirements of ASTM C928 R2.

SURFACE PREPARATION

All surfaces in contact with **Repairer VOR, CI** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends the area to be patched should be saturated for 24 hours before placement. Remove any standing water. Surface should be saturated surface dry (SSD). For best results, scrub some of the mixed components into the prepared surface. Do not allow scrub coat to fully dry before placement. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty drill 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 4.0 quarts of cool, clean potable water in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes. Mix only enough material that

MIXING (continued)

can be placed within working time. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Repairer VOR, CI should be placed upon completion of mixing. Place material consistently, avoiding any air entrapment. Use slightly more material than needed and roughly shape during placement. When material has reached the proper set, it can be shaved, shaped or molded with a steel trowel. For placements greater than 2", multiple lifts can be applied. Allow material to reach initial set before the next layer is applied. Profile or roughen each lift to ensure a good bond.

FINISHING & CURING

Follow standard ACI curing practices. Exposed surfaces should be cured with a membrane forming compound.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before use of this product. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.

PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent Repairer VOR, CI with 4.0 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method		Results		
Compressive Strength	3 Hours	1 Day	7 Days	28 Days
ASTM C109		2,000 psi (13.78 MPa)	3,000 psi (20.68 MPa)	4,500 psi (31.02 MPa)
				5,500 psi (37.92 MPa)
Rate of Set	Working Time	Initial	Final	
ASTM C266	:20	:30	:45	
Length Change	Storage	% Length Change	Average	
ASTM C157	28 Day Air	(-)0.03		
	28 Day Water	(+)0.08		
Density		122 lb/ft ³ (1,954 kg/m ³)		
ASTM C138				
Modulus of Elasticity		2.38 x 10 ⁶ @ 28 days (16.42 GPa)		
ASTM C469				
Freeze/Thaw Resistance	F/T Cycles		Durability	
ASTM C666	300		100%	
Scaling Resistance	Cycles		Scaled Material	
ASTM C672	25		.24 kg/m ²	
Bond Strength	1 Day		7 Days	
ASTM C882	1,500 psi (10.34 MPa)		1,700 psi (11.72 MPa)	
Chloride Ion Resistance	Age	Penetrability	Electrical Resistivity	
ASTM C1202	28 Days	<1200 coulombs	(ohm.cm)	
			50,000	
Coefficient of Thermal Expansion	CRD C39	5.3 x 10 ⁻⁶ in/in°F (9.54 x 10 ⁻⁶ cm/cm°C)		
Corrosion Resistivity		Repairer VOR, CI tested compatible with Vecton™ Corrosion Technologies Galvashield® embedded galvanic anodes.		

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

 **WARNING:** Cancer and Reproductive Harm -

www.P65Warnings.ca.gov.

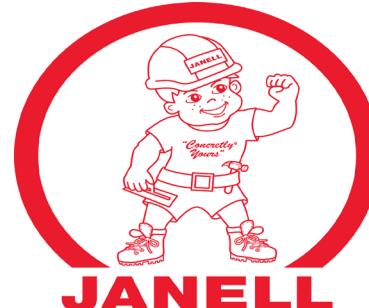
FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

Exclusively manufactured for Janell Inc. by US SPEC of Denver, CO.

Contact your Janell representative for the most current product information. Always read and follow the warnings and instructions on the most current technical data sheets.



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Dayton, OH: 937-866-9111

Columbus, OH: 614-224-9111

Lexington, KY: 859-254-9111

NOTICE OF LIMITED WARRANTY US MIX Co. (manufacturer) warrants to buyer that this product at the time and place of shipment is of good quality and conforms to the manufacturer's specifications in force on the date of manufacture when used in accordance with the instructions hereon. Manufacturer cannot warrant or guarantee any particular method of use, application or performance of the product under any particular condition. This limited warranty cannot be extended or amended by manufacturer's sales people, distributors or representatives or by any sales information, specifications of anyone other than the manufacturer. Liability under this warranty is expressly limited to refund of the purchase price. See product packaging for complete limitation of warranties and liability.

Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 4.0 quarts mixing water is used.



Seal Coat
Cementitious, Water-Resistant Coating

DESCRIPTION

Seal Coat is a one-component, dry polymer-modified blend of portland cement, admixtures and proprietary aggregates. **Seal Coat** is designed to withstand hydrostatic pressure and waterproof concrete and masonry surfaces. **Seal Coat** is a vapor transmissive product that prevents vapor build-up that leads to blistering, flaking and peeling. **Seal Coat** can eliminate the need for tuckpointing old masonry structures. **Seal Coat** will fill small holes and voids as an ideal cosmetic treatment for interior and exterior surfaces.

USES

Seal Coat is ideal for:

- Protecting concrete, brick, block, stone and other masonry above or below grade
- Interior and exterior in applications such as tanks, tunnels, pools, manholes, reservoirs, pipes, troughs, walls, etc.

BENEFITS

- Breathable: Allows interior moisture to escape without damaging coating
- Dry Polymer-Modified: Just add water
- Resistant: Withstands the intrusion of corrosive deicing salts and freeze/thaw cycles
- Versatile: Accepts a wide range of architectural and textured coatings
- Performance: Protects building interiors from moisture damage
- Consistent: Strict Quality Control testing and standards

SURFACE PREPARATION

All surfaces in contact with **Seal Coat** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces may need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 2 following ICRI Guideline 310.2R to allow proper bonding. Moisten area prior to application. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5R. Pre-wet mixer and empty excess water. Place 6.0 quarts of cool, clean potable water per 50 lb (22.7 kg) bag in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

COVERAGE

One 50 lb (22.7 kg) bag should cover approximately 300–400 ft² for damproofing (1 coat). For waterproofing (2 coats), **Seal Coat** should be applied at 200–250 ft² on the first coat and 300–400 ft² on the second coat. Total minimum thickness for proper waterproofing is 1/16". Coverage may vary depending on the porosity of surface.

PLACING

Place material consistently, without multiple layers. Avoid any air entrapment. For areas greater than 1/16" in depth, apply **Swiftset** to within 1/16" of final repair. Install in one consistent application for best color match. Material performs best when applied at cool periods in the day.

FINISHING & CURING

Follow standard ACI curing practices. Exposed surfaces should be cured with a membrane forming curing compound.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before the use of this product. This material is not intended for use as a horizontal wearing surface. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your US SPEC manufacturer's representative.



Seal Coat
Cementitious, Water-Resistant Coating

PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Seal Coat** with 6.0 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results			
Compressive Strength ASTM C109	1 Day 1,000 (6.89 MPa)	3 Days 2,000 psi (13.98 MPa)	7 Days 2,500 psi (17.23 MPa)	28 Days 3,500 psi (24.13 MPa)
Rate of Set ASTM C266	Working Time 3:00	Initial 4:00	Final 5:00	

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

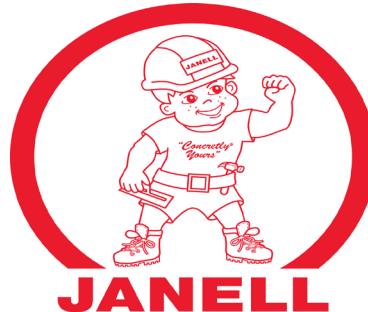
FIRST AID

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MANUFACTURER/TECHNICAL SERVICE

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Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 6.0 quarts mixing water is used.

DESCRIPTION

Patcher 1776 is a two-component, polymer-modified, portland cement mortar. **Patcher 1776** is a fast setting patching material for surface repairs from feather edge to 1" neat and up to 4" extended, in both interior and exterior applications. **Patcher 1776** exhibits superior workability by maintaining a smooth, creamy consistency for easy troweling. **Patcher 1776** has been specifically formulated to provide excellent workability through a range of consistencies. This versatility from putty consistency to more fluid allows for a wide range of concrete repairs from basic patching to topping and resurfacing.

USES

Patcher 1776 is ideal for a wide variety of horizontal, vertical and overhead concrete surface repairs:

- Surfaces subject to severe freeze/thaw cycles
- Refinish old concrete and masonry surfaces
- Parking garages, ramps, warehouses, loading docks and all structural surface repair
- Fill in pits, voids and defects in concrete and masonry
- Vertical/overhead repairs when mixed to a stiffer consistency

BENEFITS

- Thermal expansion similar to concrete
- Open to foot traffic in 4 hours and pneumatic tire in 12 hours
- Color: Consistent color match for concrete
- High bond, compressive strengths
- Interior and exterior applications
- Non-Corrosive: Will not rust
- Consistent: Strict Quality Control testing and standards

SURFACE PREPARATION

All surfaces in contact with **Patcher 1776** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends the area to be patched should be saturated for 24 hours before placement. Remove any standing water. Surface should be saturated, surface dry (SSD). Scrub some of the mixed components into the prepared surface. Do not allow scrub coat to fully dry before placement.

For best results on extremely porous or absorbent concrete, **Bonding Agent OTR** may be used as a bonding agent. Apply with a low pressure sprayer, brush or roller at a rate of 300 ft²/gal (27.9 m²/3.8 L) when diluted 1:1 with cool, clean potable water. A hand held pump sprayer or an airless industrial sprayer is acceptable. Apply evenly without puddling. Allow **Bonding Agent OTR** to fully dry prior to placing patch. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5R. Pre-wet mixer and empty excess water. Place 3/4 of the maximum 4.0 quarts of **Bonding Agent & Admix** in mixer, then add dry material. A stiffer to non-sag mix is achieved by using less **Bonding Agent & Admix**. Mix on low RPM for a total of 3 to 5 minutes, adding the remaining **Bonding Agent & Admix** until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. For placements greater than 1" depth, **Patcher 1776** must be extended 30% by weight of powder, with clean, washed and dried 3/8" (1 cm) pea gravel. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Patcher 1776 should be placed upon completion of mixing. Place material consistently, avoiding any air entrapment. Trowel material onto the surface to be repaired, ensuring that all pores and voids are filled. Force material against edge of repair, working away from center. After leveling, the patch can be troweled, brushed or broomed to the desired finish. When material has reached the proper set, it can be shaved, shaped or molded with a steel trowel. Multiple lifts can be applied. Each lift should be between 1/8" and 1" thick. Profile or roughen each lift to ensure a good bond. Screed or float to finished elevation.

FINISHING & CURING

In rapid curing situations such as high heat, UV exposure and wind, best results will be obtained by covering **Patcher 1776** with plastic, wet rags or burlap for 48 hours.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Protect **Patcher 1776** from moisture intrusion for the first 24 hours after application. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before the use of this product. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

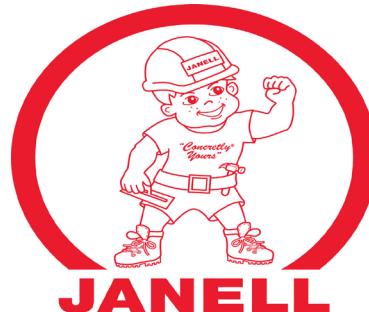
FIRST AID

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MANUFACTURER/TECHNICAL SERVICE

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Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when mixed with 4.0 quarts Bonding Agent & Admix

**DESCRIPTION**

321 Old School Mix is a blend of portland cement, dry polymers and proprietary aggregates designed to provide a textured patching material for thin surface repairs, coating and restoration applications. **321 Old School Mix** exhibits superior workability by maintaining a smooth, creamy consistency for easy troweling, rubbing or spreading. **321 Old School Mix** contains no gypsum.

USES

321 Old School Mix is ideal for a wide variety of concrete repairs:

- Resurfacing, rubbing and finishing of precast and tilt-up concrete products
- Cementitious rub for defective concrete formwork
- Refinish old, vertical, concrete surfaces
- Bridge beams, wing walls, abutments, columns and structural surface repair
- Fill in pits, voids and defects in concrete, masonry, plaster, sheetrock or wood
- Can be applied in applications from feather edge to 1/8" thickness

BENEFITS

- Durable: Contains no gypsum
- Color: Consistent color match for concrete
- Resistant: Withstands wearing
- Adhesion: Polymer modified for increased adhesion so paints and coatings bond easily
- Smooth: Maintains moisture for easy finishing
- Non-corrosive and non-metallic
- Consistent: Strict Quality Control testing and standards

SURFACE PREPARATION

All surfaces in contact with **321 Old School Mix** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces may need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 2 following ICRI Guideline 310.2R to allow proper bonding. Moisten area prior to application. Always apply a test area prior to application. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5R. Pre-wet mixer and empty excess water. Place 6.0–7.0 quarts of cool, clean potable water per 50 lb (22.7 kg) bag in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

COVERAGE

One 50 lb (22.7 kg) bag will cover approximately 45–50 ft² at 1/8" thickness. Coverage may vary depending on porosity of surface.

PLACING

321 Old School Mix can be installed with a putty knife, trowel or sponge float. Place material consistently, without multiple layers. Avoid any air entrapment. For areas greater than 1/8" in depth, apply **Swiftset** to within 1/8" of final repair. Apply a finish coat of **321 Old School Mix** with a trowel or sponge float over entire area until even. If needed, apply a second coat before the first coat sets. Install in one consistent application for best color match. Material performs best when applied at cool periods in the day. Do not add water to already applied material. Introducing water to already applied material will result in discoloration.

FINISHING & CURING

Follow standard ACI curing practices. Exposed surfaces should be cured with a membrane forming cure and seal compound.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before the use of this product. This material is not intended for use as a horizontal wearing surface. Protect newly applied material from moisture intrusion for a minimum of 8 hours. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell Representative.



321 Old School Mix
Cementitious Resurfacing Coating

PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **321 Old School Mix** with 7.0 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results			
Compressive Strength ASTM C109	1 Day 1,100 psi (7.58 MPa)	3 Days 2,000 psi (13.78 MPa)	7 Days 2,800 psi (19.30 MPa)	28 Days 4,000 psi (27.57 MPa)
Rate of Set ASTM C266	Working Time 1:30	Initial 3:00	Final 5:00	
Flexural Strength ASTM C348	7 Days 700 psi (4.82 MPa)	28 Days 1,000 psi (6.89 MPa)		
Density ASTM C138	117 lb/ft ³ (1,874 kg/m ³)			
Length Change ASTM C157	28 Day Air (-)0.04%	28 Day Water (+)0.04%		
Modulus of Elasticity ASTM C469	1.94 x 10 ⁶ @ 28 days (13.37 GPa)			
Flow ASTM C1437	Time 15 minutes	Flow 47%		
Coefficient of Thermal Expansion CRD C39	6.9 x 10 ⁻⁶ in/in°F (12.42 x 10 ⁻⁶ cm/cm°C)			

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

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Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 7.0 quarts mixing water is used.



Smoother
Cementitious Smoothing Compound

DESCRIPTION

Smoother is a blend of specialty cements, portland cement, polymers and proprietary admixtures designed for filling and smoothing interior and exterior vertical concrete surfaces and non-wearing horizontal surfaces. **Smoother** exhibits superior workability by maintaining a smooth, creamy consistency for easy troweling, rubbing or spreading. After applying, **Smoother** may be sanded to achieve an exceptionally smooth finish. Its unique self-curing mechanism allows for rapid painting and sealing.

USES

- Resurfacing, rubbing and finishing of precast and tilt-up concrete products
- Cementitious rub for defective concrete formwork
- Refinish old, vertical, concrete surfaces
- Fill in pits, voids, chipped edges and defects in concrete and masonry
- Can be applied in applications from feathered edge to 1/2" thickness in confined void-filling applications such as air voids or bugholes resulting from poor consolidation

BENEFITS

- Color: Consistent light gray color match for concrete
- Adhesion: Polymer modified for increased adhesion so paints and coating bond easily
- Smooth: Maintains moisture for easy finishing
- Self-Curing: Paint or seal as soon as dry
- Consistent: Strict Quality Control testing and standards

SURFACE PREPARATION

All surfaces in contact with **Smoother** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Moisten area prior to application. Always apply a test patch. Maintain contact areas between 50°F (10°C) and 90°F (32°C) prior to repair and during initial curing period.

COVERAGE

One 40 lb (18.2 kg) bag will cover approximately 92 ft² at 1/16" thickness. Coverage may vary depending on porosity of surface.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy-duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 4.5-6.5 quarts of cool, clean potable water per 40 lb (18.2 kg) bag in mixer or mixing container, then add dry material. Mix on low RPM for a total of 3 to 5 minutes until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Smoother can be applied with a putty knife, trowel or sponge float. Place material consistently, without multiple layers. Avoid any air entrapment. For voids deeper than 1/2" depth, apply **Swiftset** to within 1/2" of final repair. Install in one consistent application for best color match. Material performs best when applied at cool periods in the day. Do not add water to applied material. Introducing water to already applied material will result in discoloration.

FINISHING & CURING

Smoother is a self-curing product. It requires no special curing products or procedures. Finishing applications such as painting or sealing can begin as soon as **Smoother** is dry to the touch.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 50°F (10°C) or expected to fall below 50°F (10°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before use of this product. This material is not intended for use as a horizontal wearing surface. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.



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03 01 00 MAINTENANCE OF CONCRETE



Smoother
Cementitious Smoothing Compound

PHYSICAL PROPERTIES

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Property and Test Method

Compressive Strength	1 Day	7 Days	28 Days
ASTM C109	1,300 psi (8.96 MPa)	1,700 psi (11.72 MPa)	2,000 psi (13.79 MPa)
Rate of Set	Working Time	Initial	Final
ASTM C266	:50	1:15	2:10

DANGER

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NOTICE OF LIMITED WARRANTY US MIX Co. (manufacturer) warrants to buyer that this product at the time and place of shipment is of good quality and conforms to the manufacturer's specifications in force on the date of manufacture when used in accordance with the instructions hereon. Manufacturer cannot warrant or guarantee any particular method of use, application or performance of the product under any particular condition. This limited warranty cannot be extended or amended by manufacturer's sales people, distributors or representatives or by any sales information, specifications of anyone other than the manufacturer. Liability under this warranty is expressly limited to refund of the purchase price. See product packaging for complete limitation of warranties and liability.



Distributed by JANELL, INC.

03 01 00 MAINTENANCE OF CONCRETE



Strongcrete
High Strength Patching Compound

DESCRIPTION

Strongcrete is a rapid setting, rapid hardening concrete patching material that exhibits excellent flexural properties, shear bond strength and compressive strength. **Strongcrete** is a blend of portland cement and proprietary admixtures. **Strongcrete** offers superior resistance to de-icing salts, petroleum products and other chemicals prevalent on concrete roadways. In addition, **Strongcrete** will not rust or corrode reinforcing steel under moist, humid conditions.

USES

Strongcrete is ideal for a wide variety of concrete repairs:

- Highways
- Bridge decks
- Pavements
- Airport runways
- Warehouse floors
- Industrial plants

BENEFITS

- Resilient: Withstands freeze/thaw cycles and corrosive elements
- Rapid Set: High early strength, open to traffic in as little as one hour
- Performance: Excellent compressive strengths
- Consistent: Strict Quality Control testing and standards

STANDARDS

Strongcrete meets and exceeds the requirements of ASTM C928 R3.

SURFACE PREPARATION

All surfaces in contact with **Strongcrete** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Saw cut the perimeter of the area being patched into a square with a minimum depth of 1/2". Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends the area to be patched should be saturated for 24 hours before placement. Remove any standing water. Surface should be saturated surface dry (SSD). For best results, scrub some of the mixed components into the prepared surface. Do not allow scrub coat to fully dry before placement. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 3.5 quarts of cool, clean potable water per 50 lb (22.7 kg) bag in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. For placements greater than 3" depth, **Strongcrete** must be extended 30% by weight of powder, with clean, washed and dried 3/8" (1 cm) pea gravel. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Strongcrete should be placed upon completion of mixing. Place material consistently, avoiding any air entrapment. Pour material into prepared sawcut area, ensuring that all pores and voids are filled. Force material against edge of repair, working away from center. Screed or float to the level of the surrounding concrete, then trowel, brush or broom to the desired finish.

FINISHING & CURING

Follow standard ACI curing practices. Exposed surfaces should be cured with a membrane forming compound.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before use of this product. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.


Strongcrete
High Strength Patching Compound
PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Strongcrete** with 3.5 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results					
Compressive Strength ASTM C109	3 Hours 3,500 psi (24.13 MPa)	1 Day 5,000 psi (34.47 MPa)	7 Days 6,000 psi (41.36 MPa)	28 Days 7,000 psi (48.26 MPa)		
Rate of Set ASTM C266	Working Time :30	Initial :40	Final :55			
Length Change ASTM C157	28 Days Air (-0.04%)	28 Days Water (+0.04%)				
Modulus of Elasticity ASTM C469	3.32×10^6 @ 28 days (22.94 GPa)					
Freeze/Thaw Resistance ASTM C666	F/T Cycles 300		Durability 100%			
Scaling Resistance ASTM C672	Age 25 cycles	Scaled Material .09 kg/m ²	Visual Rating 1			
Bond Strength ASTM C882	1 Day 2,000 psi (13.78 MPa)		7 Days 3,000 psi (20.68 MPa)			
Flow ASTM C1437	5 Min. 128%		15 Min. 114%			
Coefficient of Thermal Expansion CRD C39	7×10^{-6} in/in°F (13×10^{-6} cm/cm°C)					
Corrosion Resistivity	Strongcrete tested compatible with Vector TM Corrosion Technologies Galvashield® embedded galvanic anodes.					

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

 **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

Exclusively manufactured for Janell Inc. by US SPEC of Denver, CO.

Contact your Janell representative for the most current product information. Always read and follow the warnings and instructions on the most current technical data sheets.

**JANELL**

Cincinnati, OH: 513-489-9111

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Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 3.5 quarts mixing water is used.



Strongcrete LST
Extended Set, High Early Strength Repair Mortar

DESCRIPTION

Strongcrete LST is a structural concrete repair mortar that exhibits excellent flexural, shear bond and compressive strengths. **Strongcrete LST** is a blend of Portland cement, selected aggregates and proprietary admixtures. **Strongcrete LST** offers superior resistance to freeze/thaw conditions, deicing salts, petroleum products and other chemicals prevalent on concrete roadways. **Strongcrete LST** is ideal for formed applications requiring extended working time, high fluidity and high early strength development.

USES

Strongcrete LST is ideal for a wide variety of concrete repairs:

- Highways
- Bridge decks
- Pavements
- Airport runways
- Warehouse floors
- Industrial plants
- Vertical form and cast-in-place flatwork

BENEFITS

- Resilient: Withstands freeze/thaw cycles and corrosive elements
- Workability: Extended working time, excellent flow
- Performance: Excellent high early compressive, bond and flexural strengths
- Consistent: Strict Quality Control testing and standards

STANDARDS

Strongcrete LST meets and exceeds the requirements of ASTM C928 R2.

SURFACE PREPARATION

All surfaces in contact with **Strongcrete LST** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Saw cut the perimeter of the area being patched into a square with a minimum depth of 1/2". Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends the area to be patched should be saturated for 24 hours before placement. Remove any standing water. Surface should be saturated surface dry (SSD). For best results, scrub some of the mixed components into the prepared surface. Do not allow scrub coat to fully dry before placement. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 4.0 quarts of cool, clean potable water per 50 lb (22.7 kg) bag in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. For placements greater than 3" depth, **Strongcrete LST** must be extended 30% by

MIXING (continued)

weight of powder, with clean, washed and dried 3/8" (1 cm) pea gravel. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Strongcrete LST should be placed upon completion of mixing. Place material consistently, avoiding any air entrapment. Pour material into prepared sawcut area, ensuring that all pores and voids are filled. Force material against edge of repair, working away from center. Screed or float to the level of the surrounding concrete, then trowel, brush or broom to the desired finish.

FINISHING & CURING

Follow standard ACI curing practices. Exposed surfaces should be cured with a membrane forming compound.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before use of this product. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.


Strongcrete LST
Extended Set, High Early Strength Repair Mortar
PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Strongcrete LST** with 4.0 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results			
Compressive Strength ASTM C109	3 Hours 3,000 psi (20.68 MPa)	1 Day 4,000 psi (27.57 MPa)	7 Days 5,500 psi (37.92 MPa)	28 Days 6,000 psi (41.36 MPa)
Rate of Set ASTM C266	Working Time .45	Initial 1:20	Final 1:45	
Flexural Strength ASTM C78	7 Days 1,000 psi 6.89 MPa	28 Days 1,500 psi 10.34 MPa		
Length Change ASTM C157	28 Days Air (-)0.06%	28 Days Water (+)0.08%		
Modulus of Elasticity ASTM C469	3.45×10^6 @ 28 days (23.69 GPa)			
Freeze/Thaw Resistance ASTM C666	F/T Cycles 300	Durability 106%		
Scaling Resistance ASTM C672	Age 25 cycles	Scaled Material .009 kg/m ²	Visual Rating 0	
Bond Strength ASTM C882	1 Day 2,000 psi (13.78 MPa)	7 Days 2,500 psi (17.23 MPa)		
Flow ASTM C1437	144%			
Coefficient of Thermal Expansion CRD C39	3.5×10^{-6} in/in°F (6.5×10^{-6} cm/cm°C)			
Corrosion Resistivity	Strongcrete LST tested compatible with Vector™ Corrosion Technologies Galvashield® embedded galvanic anodes.			

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

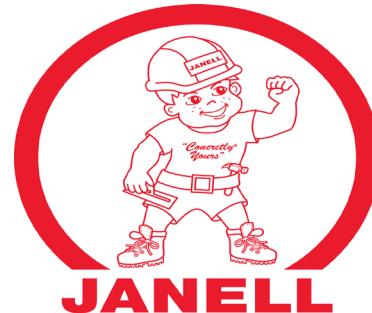
FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

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**JANELL**

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Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 4.0 quarts mixing water is used.



Strongcrete FD
High Strength, Rapid Setting Concrete

DESCRIPTION

Strongcrete FD is a rapid setting, rapid hardening, full depth concrete repair material that exhibits excellent flexural properties, shear bond strength and compressive strength. **Strongcrete FD** is a blend of portland cement, selected aggregates and proprietary admixtures. **Strongcrete FD** offers superior resistance to freeze/thaw conditions, de-icing salts, petroleum products and other chemicals prevalent on concrete roadways. In addition, **Strongcrete FD** will not rust or corrode reinforcing steel under moist, humid conditions.

USES

Strongcrete FD is ideal for a wide variety of concrete repairs:

- Highways
- Bridge decks
- Pavements
- Airport runways
- Warehouse floors
- Industrial plants

BENEFITS

- Resilient: Withstands freeze/thaw cycles and corrosive elements
- Rapid Set: High early strength, open to traffic in as little as 1 hour
- Performance: Excellent compressive strengths
- Consistent: Strict Quality Control testing and standards

STANDARDS

Strongcrete FD meets and exceeds the requirements of ASTM C928 R3.

SURFACE PREPARATION

All surfaces in contact with **Strongcrete FD** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Saw cut the perimeter of the area being patched into a square with a minimum depth of 1". Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends the area to be patched should be saturated for 24 hours before placement. Remove any standing water. Surface should be saturated surface dry (SSD). For best results, scrub some of the mixed components into the prepared surface. Do not allow scrub coat to fully dry before placement. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 3.25 quarts of cool, clean potable water in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Strongcrete FD should be placed upon completion of mixing. Place material consistently, avoiding any air entrapment. Pour material into prepared sawcut area, ensuring that all pores and voids are filled. Force material against edge of repair, working away from center. Scree or float to the level of the surrounding concrete, then trowel, brush or broom to the desired finish.

FINISHING & CURING

Follow standard ACI curing practices. Exposed surfaces should be cured with a membrane forming compound.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before use of this product. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.



Strongcrete FD
High Strength, Rapid Setting Concrete

PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Strongcrete FD** with 3.25 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results				
Compressive Strength ASTM C39	2 Hours 2,750 psi (18.96 MPa)	3 Hours 3,100 psi (21.36 MPa)	1 Day 5,100 psi (35.16 MPa)	7 Days 5,500 psi (37.92 MPa)	28 Days 6,500 psi (44.81 MPa)
Rate of Set ASTM C266		Working Time :12	Initial :25	Final :45	
Flexural Strength ASTM C78			28 Days 1,000 psi (6.89 MPa)		
Wet Density ASTM C138			141 lb/ft ³ (2,258 kg/m ³)		
Slump ASTM C143			9.0"		
Length Change ASTM C157		28 Days Air (-)0.04%	28 Days Water (+)0.02%		
Modulus of Elasticity ASTM C469			4.19 x 10 ⁶ @ 28 days (28.89 GPa)		
Splitting Tensile Strength ASTM C496		28 Days 700 psi (4.82 MPa)			
Freeze/Thaw Resistance ASTM C666		F/T Cycles 300	Durability 96%		
Scaling Resistance ASTM C672		Cycles 25	Condition of Surface 1		
Bond Strength ASTM C882		1 Day 2,500 psi (17.23 MPa)	7 Days 3,000 psi (20.68 MPa)		
Chloride Ion Resistance ASTM C1202	Age 28 Days	Penetrability <500 coulombs	Electrical Resistivity (ohm.cm) 2,800		
Coefficient of Thermal Expansion CRD C39		5.6 x 10 ⁻⁶ in/in°F (10.08 x 10 ⁻⁶ cm/cm°C)			

DANGER

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WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

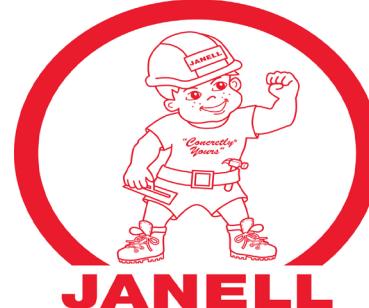
FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

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Yield: 57 lb (25.9 kg) will fill approximately 0.50 ft³ when 3.25 quarts mixing water is used.

DESCRIPTION

Stuccrete CI is a slow setting, pumpable, structural concrete repair mortar that exhibits excellent flexural properties, shear bond strength and compressive strength. **Stuccrete CI** is a blend of portland cement, selected aggregates and proprietary admixtures. **Stuccrete CI** utilizes a low solubility corrosion inhibitor to extend service-life of reinforced structures reducing absorption and chloride ion permeability. **Stuccrete CI** is ideal for formed applications that require extended working time, high fluidity and added depth requirements.

USES

Stuccrete CI is ideal for a wide variety of formed concrete repairs:

- Vertical form and cast-in-place flatwork
- Tunnels
- Grouted pre-placed aggregate
- Piers, docks and dams
- Form and pump
- Fully contained form applications

BENEFITS

- Resistant: Withstands freeze/thaw damage and de-icer scaling
- Workability: Slow setting, excellent pumpability
- Performance: Excellent compressive, bond and flexural strengths
- Low Permeability: Reduces the potential for corrosion
- Corrosion Inhibitor: Effectively reduces corrosion rate of steel reinforcement
- Consistent: Strict Quality Control testing and standards

STANDARDS

Stuccrete CI meets and exceeds the requirements of ASTM C928 R2.

SURFACE PREPARATION

All surfaces in contact with **Stuccrete CI** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. For horizontal repairs, saw cut the perimeter of the area being patched into a square with a minimum depth of $\frac{1}{2}$ ". Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends the area to be patched should be saturated for 24 hours before placement. Remove any standing water. Surface should be saturated surface dry (SSD). For best results, scrub some of the mixed components into the prepared surface. Do not allow scrub coat to fully dry before placement. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 3.25 quarts of cool, clean potable water per 50 lb (22.7 kg) bag in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. For placements greater than 3" depth, **Stuccrete CI** must be extended 30% by weight of powder, with clean, washed and dried 3/8" (1 cm) pea gravel. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Stuccrete CI should be placed upon completion of mixing.

For vertical and overhead applications, continuously pump or pour material into forms. Air relief vents in forms should be placed at the highest point in the repair area to prevent voids from entrapped air. For further forming information, refer to ACI 347R "Guide to Formwork for Concrete".

For horizontal applications, pour material into prepared saw cut area ensuring that all pores and voids are filled. Force material against edge of repair, working away from center. Scree or float to the level of the surrounding concrete, then trowel, brush or broom to the desired finish.

FINISHING & CURING

Follow standard ACI curing practices. Exposed surfaces should be cured with a membrane forming compound.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before use of this product. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.

PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Stuccrete** CI with 3.25 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results			
Compressive Strength ASTM C109	3 Hours 2,500 psi (17.23 MPa)	1 Day 5,000 psi (34.47 MPa)	7 Days 6,700 psi (46.20 MPa)	28 Days 9,000 psi (65.50 MPa)
Rate of Set ASTM C266	Working Time .25	Initial .45	Final 1.45	
Flexural Strength ASTM C348	1 Day 1,200 psi (8.27 MPa)	28 Days 1,700 psi (11.72 MPa)		
Density ASTM C138		141 lb/ft ³ (2,114 kg/m ³)		
Length Change ASTM C157	28 Days Air (-)0.04%	28 Days Water (+).03%		
Modulus of Elasticity ASTM C469		5.03 x 10 ⁶ @ 28 days (34.6 GPa)		
Freeze/Thaw Resistance ASTM C666	F/T Cycles 300	Durability 100%		
Scaling Resistance ASTM C672	Age 25 Cycles	Scaled Material .01 kg/m ²		
Bond Strength ASTM C882	1 Day 2,100 psi (14.48 MPa)	7 Days 2,800 psi (19.31 MPa)	28 Days 3,900 psi (26.89 MPa)	
Chloride Ion Resistance ASTM C1202	Age 28 Days	Penetrability <1000 coulombs	Electrical Resistivity (ohm.cm) 22,000	
Flow ASTM C1437	Time 5 Minutes	Flow 138%		
Coefficient of Thermal Expansion CRD C39		3.1 x 10 ⁻⁶ in/in°F (5.58 x 10 ⁻⁶ cm/cm°C)		

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

Exclusively manufactured for Janell Inc. by US SPEC of Denver, CO.

Contact your Janell representative for the most current product information. Always read and follow the warnings and instructions on the most current technical data sheets.


JANELL

Cincinnati, OH: 513-489-9111

Norwood, OH: 513-651-9111

Erlanger, KY: 859-341-9111

Dayton, OH: 937-866-9111

Columbus, OH: 614-224-9111

Lexington, KY: 859-254-9111

NOTICE OF LIMITED WARRANTY US MIX Co. (manufacturer) warrants to buyer that this product at the time and place of shipment is of good quality and conforms to the manufacturer's specifications in force on the date of manufacture when used in accordance with the instructions hereon. Manufacturer cannot warrant or guarantee any particular method of use, application or performance of the product under any particular condition. This limited warranty cannot be extended or amended by manufacturer's sales people, distributors or representatives or by any sales information, specifications of anyone other than the manufacturer. Liability under this warranty is expressly limited to refund of the purchase price. See product packaging for complete limitation of warranties and liability.

Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 3.25 quarts mixing water is used.



Freedom Grout
High Flow, Non-Shrink, Non-Corrosive Grout

DESCRIPTION

Freedom Grout is a blend of Portland cement, admixtures and specialty graded aggregates designed to provide ease-of-placement, maximum bearing and compressive strength performance from plastic to fluid consistency. **Freedom Grout** is non-metallic, non-shrink, non-corrosive and contains no added chlorides.

USES

Freedom Grout is ideal for a wide variety of applications that include:

- Machinery Grouting: Machinery bases, compressors, punch presses, generators
- Structural Grouting: Steel columns, precast columns, crane rails, beams
- Anchoring: Guard rails, sign posts, dowels, rods, bolts, post-tension anchors

BENEFITS

- Versatile: Suitable for plastic and fluid consistencies
- Strength: Attains high compressive strengths at specified water ratios
- Thixotropic: High flow restored by agitation
- Non-Corrosive: Will not rust
- Security: Maximum, uniform bearing support
- Performance: Joins, supports and anchors
- Consistent: Strict Quality Control testing and standards

STANDARDS

Freedom Grout meets and exceeds the requirements of ASTM C1107 and Corp of Engineers CRD C621. When tested in accordance with ASTM C827, **Freedom Grout** yields a controlled, positive expansion.

SURFACE PREPARATION

All surfaces in contact with **Freedom Grout** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends that the area to be grouted should be saturated for 24 hours before placement. Remove any standing water. Substrate should be saturated, surface dry (SSD). Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to grouting and during initial curing period.

FORMING

Method of forming must provide for rapid, continuous grout placement. For pourable grout, construct forms to retain grout without leakage. Forms should be coated with a form release for easy removal.

MIXING

For larger batches, use a mortar mixer with rotating blades. For smaller batches, use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water.

MIXING (continued)

Place 3/4 of the required cool, clean potable water in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes, adding the remaining water, until a homogeneous mixture is achieved. When using a mortar mixer higher RPMs may be necessary to achieve a homogeneous mixture. Mix only enough grout that can be placed within working time. For plastic consistency, use 3.5 quarts of water. For flowable consistency, use 4.0 quarts of water. For fluid consistency, use 4.75 quarts of water. These mix ratios provide a guideline. The actual water demand will depend on type of mixer used, water temperature and ambient temperature. Adjust the water to achieve the desired flow. Recommended flow is 20 to 30 seconds using the ASTM C939 Flow Cone Method. For placements greater than 3" depth, **Freedom Grout** must be extended 30% by weight of powder, with clean, washed and dried 3/8" (1 cm) pea gravel. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Grout should be placed using established procedures according to American Concrete Institute recommendations. **Freedom Grout** can be placed by pumping, pouring, rodding or strapping. Mechanical vibration may cause segregation of aggregates. Place grout on one side of area. Let grout flow to opposite and adjacent sides to avoid entrapment of air and uneven bearing of the grouted surface. When necessary, provide vent holes. Grout should continue to be placed until it protrudes from the entire perimeter area. Grout "head" and excess grout may be removed after initial set. Minimum placement depth; one inch recommended.

FINISHING & CURING

Follow standard ACI curing practices. Do not disturb formwork or grout for 24 hours. Use wet rags or burlap to cure for 6 hours after placement. After 6 hours, remove rags from exposed surfaces and cure with a membrane forming curing compound. For best results, exposed grout should extend downward at a 45° angle from edge of base.

STORAGE

Normal cement storage and handling practices should be observed. Store in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. When grouting at minimum temperatures, ensure surfaces in contact with grout do not fall below 40°F (4°C) until final set has been achieved and grout has reached 3,000 psi. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the sub- strate without addressing any movement that may occur. Do not use as a patching or overlay mortar or in



Freedom Grout
High Flow, Non-Shrink, Non-Corrosive Grout

PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Freedom Grout** at a fluid (4.75 quarts) consistency unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results			
Compressive Strength				
ASTM C109 via C1107	1 Day	3 Days	7 Days	28 Days
B - PLASTIC 3.5 qts	3,000 psi (20.68 MPa)	5,000 psi (34.47 MPa)	6,000 psi (41.37 MPa)	7,000 psi (48.26 MPa)
C - FLOWABLE 4.0 qts	2,200 psi (15.17 MPa)	3,500 psi (24.13 MPa)	4,500 psi (31.03 MPa)	6,200 psi (42.75 MPa)
D - FLUID 4.75 qts	2,000 psi (13.79 MPa)	3,000 psi (20.68 MPa)	4,000 psi (27.58 MPa)	6,000 psi (41.37 MPa)
Rate of Set @ 70°F				
ASTM C266	Working Time	Initial	Final	
B - PLASTIC - 3.5 qts	:50	1:20	4:00	
C - FLOWABLE - 4.0 qts	2:30	3:00	4:30	
D - FLUID - 4.75 qts	3:00	4:00	6:00	
B - 100% - 125% flow table (ASTM C230, 5 drops in 3 seconds)				
C - 125% - 145% flow table (ASTM C230, 5 drops in 3 seconds)				
D - 28 second flow cone method (ASTM C939)				
Scaling Resistance	Cycles	Scaled Material		
ASTM C672	25	.01 kg/m ²		
Density		133 lb/ft ³ (2,130 kg/m ³)		
ASTM C138				
Bond Strength	1 Day	7 Days		
ASTM C882	1,000 psi (6.89 MPa)	2,500 psi (17.23 MPa)		
Height Change		28 Days		
ASTM C1090		+0.25%		

LIMITATIONS (continued)

unconfined areas. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

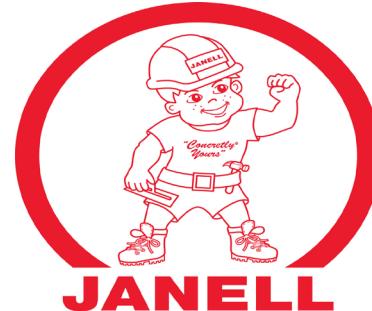
FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

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Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 4.75 quarts mixing water is used.



Liberty Grout
High Strength, Non-Shrink, Non-Corrosive Grout

DESCRIPTION

Liberty Grout is a blend of portland cement, special admixtures and proprietary aggregates designed to provide high flexural and compressive strength performance from plastic to fluid consistencies. **Liberty Grout** is non-metallic, non-shrink, non-corrosive and contains no added chlorides.

USES

Liberty Grout is ideal for a wide variety of precision applications that include:

- Machinery Grouting: Machinery bases, compressors, punch presses, generators
- Structural Grouting: Steel columns, precast columns, crane rails, beams
- Anchoring: Guard rails, sign posts, dowels, rods, bolts, post-tension anchor heads

BENEFITS

- Workability: Meets standards through a wide range of consistencies
- Thixotropic: High flow restored by agitation
- Non-Corrosive: Will not rust
- Cost Effective: Extendable
- Strength: Attains high compressive strengths at specified water ratios
- Economical: Good performance and low cost
- Performance: Joins, supports and anchors
- Hardens free of bleeding or segregation
- Consistent: Strict Quality Control testing and standards

STANDARDS

Liberty Grout meets and exceeds the requirements of ASTM C1107 and Corp of Engineers CRD C621. When tested in accordance with ASTM C827, **Liberty Grout** yields a controlled, positive expansion.

SURFACE PREPARATION

All surfaces in contact with **Liberty Grout** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends that the area to be grouted should be saturated for 24 hours before placement. Remove any standing water. Substrate should be saturated, surface dry (SSD). Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to grouting and during initial curing period.

FORMING

Method of forming must provide for rapid, continuous grout placement. For pourable grout, construct forms to retain grout without leakage. Forms should be coated with a form release for easy removal.

MIXING

For larger batches, use a mortar mixer with rotating blades. For smaller batches, use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 3/4 of the required cool, clean potable water in mixer, then add dry

MIXING (continued)

material. Mix on low RPM for a total of 3 to 5 minutes, adding the remaining water, until a homogeneous mixture is achieved. When using a mortar mixer higher RPMs may be necessary to achieve a homogeneous mixture. Mix only enough grout that can be placed within working time. For plastic consistency, use 3.5 quarts of water. For flowable consistency, use 4.0 quarts of water. For fluid consistency, use 4.5 quarts of water. These mix ratios provide a guideline. The actual water demand will depend on type of mixer used, water temperature and ambient temperature. Adjust the water to achieve the desired flow. Recommended flow is 20 to 30 seconds using the ASTM C939 Flow Cone Method. For placements greater than 3" depth, **Liberty Grout** must be extended 30% by weight of powder, with clean, washed and dried 3/8" (1 cm) pea gravel. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Grout should be placed using established procedures according to American Concrete Institute recommendations. **Liberty Grout** can be placed by pumping, pouring, rodding or strapping. Mechanical vibration may cause segregation of aggregates. Place grout on one side of area. Let grout flow to opposite and adjacent sides to avoid entrapment of air and uneven bearing of the grouted surface. When necessary, provide vent holes. Grout should continue to be placed until it protrudes from the entire perimeter area. Grout "head" and excess grout may be removed after initial set. Minimum placement depth; one inch recommended.

FINISHING & CURING

Follow standard ACI curing practices. Do not disturb formwork or grout for 24 hours. Use wet rags or burlap to cure for 6 hours after placement. After 6 hours, remove rags from exposed surfaces and cure with a membrane forming curing compound. For best results, exposed grout should extend downward at a 45° angle from edge of base.

STORAGE

Normal cement storage and handling practices should be observed. Store in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. When grouting at minimum temperatures, ensure surfaces in contact with grout do not fall below 40°F (4°C) until final set has been achieved and grout has reached 3,000 psi. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Do not use as a patching or overlay mortar or in unconfined areas. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.


Liberty Grout
 High Strength, Non-Shrink, Non-Corrosive Grout
PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Liberty Grout** at a fluid (4.5 quarts) consistency unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results			
Compressive Strength ASTM C109 via C1107	1 Day	3 Days	7 Days	28 Days
B - PLASTIC 3.5 qts	3,500 psi (24.13 MPa)	5,500 psi (37.92 MPa)	6,500 psi (44.82 MPa)	8,500 psi (58.61 MPa)
C - FLOWABLE 4.0 qts	3,000 psi (20.68 MPa)	5,000 psi (34.47 MPa)	6,000 psi (41.37 MPa)	8,000 psi (55.16 MPa)
D - FLUID 4.5 qts	2,000 psi (13.79 MPa)	4,100 psi (28.27 MPa)	5,000 psi (34.47 MPa)	7,000 psi (48.26 MPa)
Rate of Set ASTM C266	Working Time	Initial	Final	
B - PLASTIC - 3.5 qts	:45	2:00	3:30	
C - FLOWABLE - 4.0 qts	1:00	3:00	4:15	
D - FLUID - 4.5 qts	1:45	4:00	5:30	
B - 100% - 125% flow table (ASTM C230, 5 drops in 3 seconds)				
C - 125% - 145% flow table (ASTM C230, 5 drops in 3 seconds)				
D - 28 second flow cone method (ASTM C939)				
Flexural Strength ASTM C348	7 Days	28 Days		
	800 psi (5.51 MPa)	1,200 psi (8.27 MPa)		
Density ASTM C138		137 lb/ft ³ (2,195 kg/m ³)		
Modulus of Elasticity ASTM C469		2.83 x10 ⁶ (19.48 GPa)		
Splitting Tensile ASTM C496		28 Days		
	600 psi (4.13 MPa)			
Scaling Resistance ASTM C672	Cycles	Scaled Material		
	25	.04 kg/m ²		
Bond Strength ASTM C882	1 Day	7 Days	28 Days	
	1,300 psi (8.96 MPa)	2,000 psi (13.78 MPa)	2,300 psi (15.85 MPa)	
Height Change ASTM C1090	1 Day	3 Days	7 Days	28 Days
	+0.01%	+0.02%	+0.03%	+0.04%
Effective Bearing Area ASTM C1339		>95%		
Corrosion Resistivity	Liberty Grout tested compatible with Vector Corrosion Technologies Galvashield embedded galvanic anodes.			

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

 **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

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Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 4.5 quarts mixing water is used.

DESCRIPTION

Patriot Grout is a blend of portland cement, special admixtures and proprietary aggregates designed to provide high flexural and compressive strength performance from plastic to fluid consistencies. **Patriot Grout** is non-metallic, non-shrink, non-corrosive and contains no added chlorides.

USES

Patriot Grout is ideal for a wide variety of precision applications that include:

- Precision Grouting: Machinery bases, compressors, punch presses, generators
- Structural Grouting: Steel columns, precast columns, crane rails, beams
- Underwater Grouting: Form and pump applications
- Anchoring: Guard rails, sign posts, dowels, rods, bolts
- Pumping Applications: Excellent flowability

BENEFITS

- Versatile: Plastic or fluid consistency
- Cost effective: Extendable
- Strength: Attains high compressive strengths at specified water ratios
- Thixotropic: High flow restored by agitation
- Non-Corrosive: Will not rust
- Security: Maximum, uniform bearing support
- Performance: Joins, supports and anchors
- Hardens free of bleeding or segregation
- Consistent: Strict Quality Control testing and standards

STANDARDS

Patriot Grout meets and exceeds the requirements of ASTM C1107 and Corp of Engineers CRD C621. When tested in accordance with ASTM C827, **Patriot Grout** yields a controlled, positive expansion. City of LA Research Report #25526.

SURFACE PREPARATION

All surfaces in contact with **Patriot Grout** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends that the area to be grouted should be saturated for 24 hours before placement. Remove any standing water. Substrate should be saturated, surface dry (SSD). Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to grouting and during initial curing period.

FORMING

Method of forming must provide for rapid, continuous grout placement. For pourable grout, construct forms to retain grout without leakage. Forms should be coated with a form release for easy removal.

MIXING

For larger batches, use a mortar mixer with rotating blades. For smaller batches, use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water.

MIXING (continued)

Place 3/4 of the required cool, clean potable water in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes, adding the remaining water, until a homogeneous mixture is achieved. When using a mortar mixer higher RPMs may be necessary to achieve a homogeneous mixture. Mix only enough grout that can be placed within working time. For plastic consistency, use 3.0 quarts of water. For flowable consistency, use 4.0 quarts of water. For fluid consistency, use 4.5 quarts of water. These mix ratios provide a guideline. The actual water demand will depend on type of mixer used, water temperature and ambient temperature. Adjust the water to achieve the desired flow. Recommended flow is 20 to 30 seconds using the ASTM C939 Flow Cone Method. For placements greater than 3" depth, **Patriot Grout** must be extended 30% by weight of powder, with clean, washed and dried 3/8" (1 cm) pea gravel. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Grout should be placed using established procedures according to American Concrete Institute recommendations. **Patriot Grout** can be placed by pumping, pouring, rodding or strapping. Mechanical vibration may cause segregation of aggregates. Place grout on one side of area. Let grout flow to opposite and adjacent sides to avoid entrapment of air and uneven bearing of the grouted surface. When necessary, provide vent holes. Grout should continue to be placed until it protrudes from the entire perimeter area. Grout "head" and excess grout may be removed after initial set. Minimum placement depth; one inch recommended.

FINISHING & CURING

Follow standard ACI curing practices. Do not disturb formwork or grout for 24 hours. Use wet rags or burlap to cure for 6 hours after placement. After 6 hours, remove rags from exposed surfaces and cure with a membrane forming curing compound. For best results, exposed grout should extend downward at a 45° angle from edge of base.

STORAGE

Normal cement storage and handling practices should be observed. Store in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. When grouting at minimum temperatures, ensure surfaces in contact with grout do not fall below 40°F (4°C) until final set has been achieved and grout has reached 3,000 psi. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Do not use as a patching or overlay mortar or in unconfined areas. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.

PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Patriot Grout** at a fluid (4.5 quarts) consistency unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results					
Compressive Strength ASTM C109 via C1107	1 Day	3 Days	7 Days	28 Days		
B - PLASTIC 3.0 qts	4,200 psi (28.96 MPa)	6,200 psi (42.72 MPa)	7,000 psi (48.23 MPa)	8,500 psi (58.57 MPa)		
C - FLOWABLE 4.0 qts	4,000 psi (27.58 MPa)	5,900 psi (39.96 MPa)	6,500 psi (44.79 MPa)	8,000 psi (55.16 MPa)		
D - FLUID 4.5 qts	3,500 psi (24.13 MPa)	5,000 psi (34.47 MPa)	6,000 psi (41.37 MPa)	7,500 psi (51.71 MPa)		
Rate of Set @ 75°F ASTM C266	Working Time	Initial	Final			
B - PLASTIC - 3.0 qts	:40	1:09	2:15			
C - FLOWABLE - 4.0 qts	2:00	2:45	4:30			
D - FLUID - 4.5 qts	2:30	3:30	5:30			
B - 100% - 125% flow table (ASTM C230, 5 drops in 3 seconds)						
C - 125% - 145% flow table (ASTM C230, 5 drops in 3 seconds)						
D - 28 second flow cone method (ASTM C939)						
Flexural Strength ASTM C78	7 Days 900 psi (6.20 MPa)	28 Days 1,400 psi (9.65 MPa)				
Density ASTM C138		132 lb/ft³ (2,114 kg/m³)				
Modulus of Elasticity ASTM C469		3.42 x 10⁶ (23.60 GPa)				
Splitting Tensile ASTM C496		28 Days 800 psi (5.52 MPa)				
Scaling Resistance ASTM C672	Cycles 25	Scaled Material .12 kg/m²				
Early Height Change ASTM C827		Final Set (+)0.09%				
Bond Strength ASTM C882	1 Day 1,100 psi (7.58 MPa)	7 Days 1,700 psi (11.72 MPa)	28 Days 2,300 psi (15.85 MPa)			
Height Change ASTM C1090	1 Day +0.01%	3 Days +0.02%	7 Days +0.03%	28 Days +0.03%		
Freeze/Thaw Resistance ASTM C666	F/T Cycles 300		Durability 100%			
Effective Bearing Area ASTM C1339	>95%					
Corrosion Resistivity	Patriot Grout tested compatible with Vector Corrosion Technologies Galvashield embedded galvanic anodes.					

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

 **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

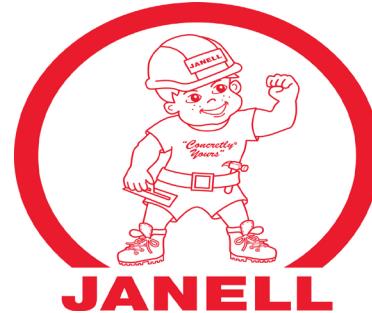
FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

Exclusively manufactured for Janell Inc. by US SPEC of Denver, CO.

Contact your Janell representative for the most current product information. Always read and follow the warnings and instructions on the most current technical data sheets.


JANELL

Cincinnati, OH: 513-489-9111

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NOTICE OF LIMITED WARRANTY US MIX Co. (manufacturer) warrants to buyer that this product at the time and place of shipment is of good quality and conforms to the manufacturer's specifications in force on the date of manufacture when used in accordance with the instructions hereon. Manufacturer cannot warrant or guarantee any particular method of use, application or performance of the product under any particular condition. This limited warranty cannot be extended or amended by manufacturer's sales people, distributors or representatives or by any sales information, specifications of anyone other than the manufacturer. Liability under this warranty is expressly limited to refund of the purchase price. See product packaging for complete limitation of warranties and liability.

Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 4.5 quarts mixing water is used.



Distributed by JANELL, INC.



Rapid Plug
Rapid-Setting Hydraulic Patch

DESCRIPTION

Rapid Plug is a blend of hydraulic cement and proprietary admixtures used for plugging and stopping water or fluid leaks in concrete structures and masonry walls. When mixed to a thick consistency and hand-formed, **Rapid Plug** will set in 3 to 5 minutes to seal out water. **Rapid Plug** is a non-corrosive and non-rusting material.

USES

Rapid Plug is ideal for interior and exterior applications to stop the seepage of water through cracks and faults in concrete and masonry structures such as:

- Dams, basements, swimming pools, manholes
- Cisterns, water tanks, underground electric vaults
- Elevator pits, mines, tunnels, sewers, culverts
- Water pipe joints
- Any situation requiring a fast, durable long lasting repair

BENEFITS

- Durable: Provides lifetime repairs
- Color: Consistent color match for concrete
- Resistant: Withstands freeze/thaw cycles
- Fast Setting: Sets in 3 to 5 minutes
- Performance: Instantly stops seepage
- Vertical and overhead applications
- Consistent: Strict Quality Control testing and standards

SURFACE PREPARATION

All surfaces in contact with **Rapid Plug** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Best results will be obtained by undercutting the area to be filled. Small cracks should be enlarged to maximize bonding area. ACI recommends that the area to be patched should be saturated for 24 hours before placement. Remove any standing water. Surface should be saturated, surface dry (SSD). Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

Pre-wet mixing container and empty excess water. Add a sufficient amount of water to achieve a putty consistency when mixed. Mix only enough material that can be placed within working time. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

For general repairs, force material into the area to be repaired by hand or with a trowel. Fill to full depth and trowel to final level without overworking the material. To stop running water, mold material by hand into a ball or wedge shape and hold **Rapid Plug** in hand or on a trowel until material becomes warm. Press firmly into opening and maintain pressure on the patch until material stops the leak or approximately 3 to 5 minutes. Trowel material into final shape without damaging plug. For sealing cracks in walls or floors, force **Rapid Plug** into the crack by starting at the area with the least amount of pressure. Hold into place and maintain pressure until the material has hardened.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. **Rapid Plug** will not permanently repair cracks and joints subjected to thermal or structural movement. Allow concrete to fully cure for 28 days before use of this product. This material is not intended for use as a horizontal wearing surface. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.



Rapid Plug
Rapid-Setting Hydraulic Patch

PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Rapid Plug** with 7.0 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results			
Compressive Strength ASTM C109	1 Day 2,000 psi (13.78 MPa)	3 Days 3,500 psi (24.13 MPa)	7 Days 4,000 psi (27.57 MPa)	28 Days 5,500 psi (37.92 MPa)
Rate of Set ASTM C266	Working Time :01	Initial :03	Final :05	
Density ASTM C138		128 lb/ft ³ (2,050 kg/m ³)		
Modulus of Elasticity ASTM C469		2.8 $\times 10^6$ @ 28 days (19.0 GPa)		
Scaling Resistance ASTM C672	Cycles 25	Scaled Material 0 kg/m ² (0 lb/ft ²)		
Coefficient of Thermal Expansion CRD C39		7.8 $\times 10^{-6}$ in/in°F (14.04 $\times 10^{-6}$ cm/cm°C)		

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

FIRST AID

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MANUFACTURER/TECHNICAL SERVICE

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Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 7.0 quarts mixing water is used.



DESCRIPTION

Rapid Anchor is a blend of specialty cements, admixtures and proprietary aggregates. **Rapid Anchor** is designed with expansive compounds to reach final set in 20 minutes. As it sets, **Rapid Anchor** uses the expansive compounds to lock in bolts, posts, railings and other fixtures. **Rapid Anchor** is non-corrosive and non-rusting.

USES

Rapid Anchor is ideal for a wide variety of applications that include:

- Anchoring of wood or metal sign posts, fence posts, parking meters, dowels and rods
- Setting appliances, machinery, processing equipment and conveyors
- Bridge railings and other fixtures in concrete and masonry

BENEFITS

- Will not deteriorate with exposure to water
- Longevity: Resists freeze/thaw cycles
- Performance: Expands to lock into place
- Consistent: Strict Quality Control testing and standards

SURFACE PREPARATION

All surfaces in contact with **Rapid Anchor** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. The hole to receive **Rapid Anchor** must be cored in sound concrete. The recommended hole diameter is 3 1/4 times the bolt diameter. Always allow sufficient hole diameter so the material will flow readily between the fixture and the wall of the cavity. Blow or vacuum out all loose particles and dust. ACI recommends that the area to be grouted be saturated for 24 hours before placement. Remove any standing water prior to placement. Surface should be saturated, surface dry (SSD).

MIXING

Mix using a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 3/4 of the required 4.5 quarts of cool, clean potable water in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes, adding the remaining water until a homogeneous mixture is achieved. For vertical applications, mix with just enough water for a puttylike consistency. Mix only enough material that can be placed within working time. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

When mixed to a fluid consistency, it is necessary to seal any openings where **Rapid Anchor** may escape. Pour a small amount of **Rapid Anchor** into the hole and work the bolt up and down a few times to eliminate any air pockets. Fill the balance of the hole pouring from one side only to ensure an even flow. Fixture should be supported until **Rapid Anchor** reaches final set. Once the work has begun, continue without interruption so the entire area to be grouted is completely filled before **Rapid Anchor** begins to set.

FINISHING & CURING

Follow standard ACI curing practices. Exposed surfaces should be cured with a membrane forming curing compound.

STORAGE

Normal cement storage and handling practices should be observed. Store in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not use as a patching or overlay mortar or in unconfined areas. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.



Rapid Anchor
Pourable Anchoring Cement

PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^\circ\text{F}$ ($23 \pm 2^\circ\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Rapid Anchor** with 4.5 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results			
Compressive Strength ASTM C109	1 Day 2,300 psi (15.85 MPa)	3 Days 3,000 psi (20.68 MPa)	7 Days 4,000 psi (27.57 MPa)	28 Days 5,000 psi (34.47 MPa)
Rate of Set ASTM C266	Working Time :10	Initial :15	Final :20	
Pull-Out Strength ASTM E488*	Age 28 Days	Tensile Strength 21,672 lbs (3,180 psi)		

*Average of five tests. 4,000 psi concrete using #4 (1/2") Grade 60 rebar embedded 8" in 2" diameter core-drilled SSD holes. Rebar failed before Rapid Anchor.

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

 **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

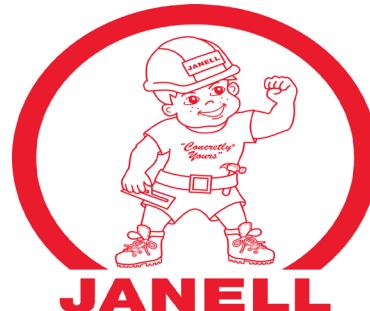
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Yield: 50 lb (22.7 kg) will fill approximately 14 in³ when 4.5 quarts mixing water is used.



DESCRIPTION

Flowtopper is a stainable, industrial overlayment designed for resurfacing and leveling interior concrete. The new surface will accept foot traffic in 6 hours and light rubber wheel traffic in 24 hours. **Flowtopper** is a blend of portland cement, high performance polymers, selected aggregates and proprietary admixtures. **Flowtopper** can be applied from 1/4" to 1/2" in a single lift.

USES

Flowtopper is ideal for applying over the surface of existing interior concrete to produce a new wearing surface. Use to resurface and repair:

- Cracked or spalled concrete
- Rough or uneven surfaces that need leveling
- Warehouse or light industrial floors that are in need of renovation for a hard, level surface

BENEFITS

- Durable: Contains no gypsum
- Color: Excellent base color to receive stain
- Versatile: Rehabilitates, repairs, resurfaces
- Adhesion: Polymer modified for increased adhesion to concrete surfaces
- Consistent: Strict Quality Control testing and standards

SURFACE PREPARATION

All surfaces in contact with **Flowtopper** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Concrete must be a minimum of 28 days old prior to placing **Flowtopper**.

Mechanically prepare the surface by shotblasting or scarifying to match ICRI CSP#5 (1/8" depth). Acid etching or the use of solvents is not an acceptable means of cleaning the substrate. Concrete must be abraded in order to receive primer and underlayment. Take special care in preparing very smooth, highly power troweled concrete. These surfaces must be prepared properly or the underlayment may delaminate.

After cleaning and profiling, test for moisture vapor emission rate (MVER - Ref. ASTM F1869) and concrete substrate's relative humidity (RH - Ref. ASTM F2170). The requirements of the floor covering and floor adhesive manufacturers must be followed with respect to, but not limited to, levels of moisture. Low substrate temperatures and/or high ambient humidity will extend drying time.

Repair holes and nonmoving cracks prior to application. Tensile strengths of the substrate must be greater than 72 psi (.5 MPa) per ASTM C1583. Install a bondbreaker where vertical surfaces meet the newly placed **Flowtopper**, such as self-adhering thick foam tape or similar product. **Note:** It is the responsibility of the installer/applicator to ensure the suitability of the product for its intended use.

Prime the surface with **Bonding Agent OTR** at a rate of 500–600 ft²/gal when diluted 2:1 with clean, potable water. Apply evenly with a soft push broom. Do not use paint rollers, mops or spray equipment. Coverage rate of **Bonding Agent OTR** will vary depending on the porosity of the surface. Extremely absorbent

SURFACE PREPARATION (continued)

concrete may require two applications of **Bonding Agent OTR** to avoid the formation of "pinholes" in the underlayment. For this type of concrete, apply a first coat of **Bonding Agent OTR** diluted 3:1 with water. Subsequent applications of **Bonding Agent OTR** should be at the standard 2:1 ratio. Allow to dry to the touch before proceeding (2 to 4 hours). Protect primed substrate from foot traffic prior to installation. If applying lifts, prep and prime each lift with **Bonding Agent OTR**. **Flowtopper** can be used over engineer approved wood subfloors including plywood, parquet and tongue and groove wood flooring with addition of metal lathe. Wood floors must be stable in order to provide a non-flexible surface. Fill joints and cracks to prevent seepage into undesired areas. Always apply a test area.

COVERAGE

One 50 lb (22.7 kg) bag will cover approximately 25 ft² at 1/4" thickness. Coverage may vary depending on porosity of surface.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 4.5 quarts of cool, clean potable water per 50 lb (22.7 kg) bag in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. For placements greater than 1/2", **Flowtopper** must be extended 30%, by weight of powder, with clean, washed and dried 3/8" (1 cm) pea gravel. Add the aggregate during the last minute of mixing. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Before application, close all doors, windows and HVAC vents to minimize air flow in the application area. Protect areas from direct sunlight. Pour or pump **Flowtopper** onto the primed substrate. Work into position with a long handled spreader, gauge rake and/or spiked roller. Immediately smooth the material with a "smoother". Wear spiked shoes to avoid leaving marks in the **Flowtopper**. The addition of aggregate will reduce the workability of the product and may make it necessary to install a neat coat to obtain a smooth surface. A second lift of non-extended material may be applied as soon as foot traffic can be supported. Profile or roughen subsequent lifts and re-prime with **Bonding Agent OTR** to ensure a good bond.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. This product is for interior use only. Do not apply when the surface or ambient temperature is below 50°F (10°C) or expected to fall below 50°F (10°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Although crack repair is


Flowtopper
Cementitious Self-Leveling Industrial Overlayment
PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Flowtopper** with 4.5 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method		Results		
Compressive Strength	4 Hours	1 Day	7 Days	28 Days
ASTM C109	2,000 psi (13.79 MPa)	2,800 psi (19.31 MPa)	3,200 psi (22.06 MPa)	5,400 psi (37.23 MPa)
Rate of Set	Self Leveling/ Healing Time :15	Working Time :20	Initial :30	Final 1:30
Flexural Strength		7 Days 1,100 psi (7.58 MPa)	28 Days 1,300 psi (8.96 MPa)	

LIMITATIONS (continued)

recommended prior to application, we cannot guarantee that cracks will not "telegraph" up through the overlayment. All moving joints, such as expansion joints, must be carried up through the new surface. Allow concrete to fully cure for 28 days before the use of this product. **Flowtopper** is not a resurfacing material for highways, streets, areas exposed to continuous traffic or industrial applications subject to hard or metal-wheeled traffic. Setting time will speed up in warm conditions and slow in cold conditions. **Flowtopper** makes an excellent base to receive concrete stains and sealers. As the performance of these systems varies greatly, it is essential that test areas be placed and evaluated to determine suitability prior to coating the entire area. In most cases, sealers can be applied 24 hours after the application of **Flowtopper**. **Note:** Most acid stains require 28 day curing time. and slow in cold weather. For hot and cold weather applications, contact your Janell representative.

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

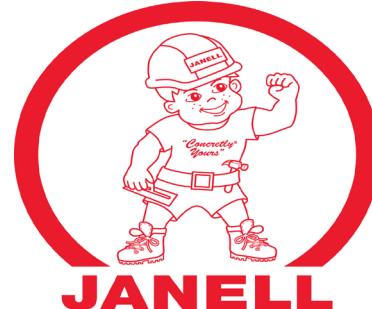
FIRST AID

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Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 4.5 quarts mixing water is used.



Distributed by JANELL, INC.

03 54 16 HYDRAULIC CEMENT UNDERLAYMENT



Flowssmooth
Cement-based Self-Leveling Floor Underlayment

DESCRIPTION

Flowssmooth is a blend of portland cement, high performance polymers, selected aggregates and proprietary admixtures designed to provide a smooth, level floor without the labor intensity of hand applied materials. This material will provide a hard surface in 4 hours with floor coverings able to be installed within 24 hours. **Flowssmooth** can be applied up to 1" in a single lift and up to 2" when extended with washed, clean and dried 3/8" pea gravel.

USES

Flowssmooth is ideal for creating a level surface in interior applications:

- Offices, schools and other areas that will require carpet, tile, coatings or wearing surfaces
- Warehouse and light industrial renovation projects
- Rough or uneven surfaces that need leveling

BENEFITS

- Ease of Use: Eliminates troweling
- Cost Effective: Saves hand-applied labor
- Versatile: Rehabilitates, repairs and resurfaces
- Adhesion: Polymer modified for increased adhesion to concrete surfaces
- Consistent: Strict Quality Control testing and standards

SURFACE PREPARATION

All surfaces in contact with **Flowssmooth** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Concrete must be a minimum of 28 days old prior to placing **Flowssmooth**.

Mechanically prepare the surface by shotblasting or scarifying to match ICRI CSP#5 (1/8" depth). Acid etching or the use of solvents is not an acceptable means of cleaning the substrate. Concrete must be abraded in order to receive primer and underlayment. Take special care in preparing very smooth, highly power troweled concrete. These surfaces must be prepared properly or the underlayment may delaminate.

After cleaning and profiling, test for moisture vapor emission rate (MVER - Ref. ASTM F1869) and concrete substrate's relative humidity (RH - Ref. ASTM F2170). The requirements of the floor covering and floor adhesive manufacturers must be followed with respect to, but not limited to, levels of moisture. Low substrate temperatures and/or high ambient humidity will extend drying time.

Repair holes and nonmoving cracks prior to application. Tensile strengths of the substrate must be greater than 72 psi (.5 MPa) per ASTM C1583. Install a bondbreaker where vertical surfaces meet the newly placed **Flowssmooth**, such as self-adhering thick foam tape or similar product. **Note:** It is the responsibility of the installer/applicator to ensure the suitability of the product for its intended use.

Prime the surface with **Bonding Agent OTR** at a rate of 500–600 ft²/gal when diluted 2:1 with clean, potable water. Apply evenly with a soft push broom. Do not use paint rollers, mops or spray equipment. Coverage rate of **Bonding Agent OTR** will vary depending on the porosity of the surface. Extremely absorbent concrete may require two applications of **Bonding Agent OTR** to

SURFACE PREPARATION (continued)

avoid the formation of "pinholes" in the underlayment. For this type of concrete, apply a first coat of **Bonding Agent OTR** diluted 3:1 with water. Subsequent applications of **Bonding Agent OTR** should be at the standard 2:1 ratio. Allow to dry to the touch before proceeding (2 to 4 hours). Protect primed substrate from foot traffic prior to installation. If applying lifts, prep and prime each lift with **Bonding Agent OTR**. **Flowssmooth** can be used over engineer approved wood subfloors including plywood, parquet and tongue and groove wood flooring with addition of metal lathe. Wood floors must be stable in order to provide a non-flexible surface. Fill joints and cracks to prevent seepage into undesired areas. Always apply a test area.

COVERAGE

One 50 lb (22.7 kg) bag will cover approximately 25 ft² at 1/4" thickness. Coverage may vary depending on porosity of surface.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, cored drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 4.5 quarts of cool, clean potable water per 50 lb bag (22.7 kg) in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. For placements greater than 1", **Flowssmooth** must be extended 30%, by weight of powder, with clean, washed and dried 3/8" (1 cm) pea gravel. Add the aggregate during the last minute of mixing. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

Before application, close all doors, windows and HVAC vents to minimize air flow in the application area. Protect areas from direct sunlight. Pour or pump **Flowssmooth** onto the primed substrate. Work into position with a long handled spreader, gauge rake and/or spiked roller. The material will flow freely during the self-leveling time and needs no troweling. Immediately smooth the material with a "smoother". Wear spiked shoes to avoid leaving marks in the underlayment. The addition of aggregate will reduce the workability of the product and may make it necessary to install a neat coat to obtain a smooth surface. A second lift of non-extended material may be applied as soon as foot traffic can be supported. Profile or roughen subsequent lifts and re-prime with **Bonding Agent OTR** to ensure a good bond.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. This product is for interior use only. **Flowssmooth** is not to be used as a permanent wear surface, even if coated or sealed. **Flowssmooth** must be covered with a suitable floor covering material such as carpet, vinyl flooring, ceramic tile, etc. Protect from water for 48 hours. Do not apply when the surface or ambient temperature is below 50°F (10°C) or expected to fall

Packaging: 50 lb (22.7 kg) bag, 63 bags per pallet



Flowsmooth
Cement-based Self-Leveling Floor Underlayment

PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **Flowsmooth** with 4.5 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method		Results		
Compressive Strength		1 Day	7 Days	28 Days
ASTM C109		2,000 psi (13.78 MPa)	2,500 psi (17.23 MPa)	3,000 psi (20.68 MPa)
Rate of Set	Self Leveling/ Healing Time	Working Time :20	Initial :30	Final :50
ASTM C1708				1:30
Flow Retention	Initial Flow	20 min	30 min.	
ASTM C1708		5.5"	5.5"	5.375"
Bond Strength		3 Days	28 Days	
ASTM C882		1,100 psi (7.58 MPa)	1,600 psi (11.03 MPa)	
Chloride Ion Content		Acid Soluble		
ASTM C1152		.006 / .014		
Flexural Strength		7 Days	28 Days	
ASTM C348		1,000 psi (6.89 MPa)	1,400 psi (9.65 MPa)	
Length Change		28 Days Air (-0.04%)	28 Days Water (+0.03%)	
Modulus of Elasticity		2.64 $\times 10^6$ (18.21 GPa)		
Coefficient of Thermal Expansion	CRD C39	6.2 $\times 10^{-6}$ in/in°F (11.6 $\times 10^{-6}$ cm/cm°C)		

LIMITATIONS (continued)

below 50°F (10°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Although crack repair is recommended prior to application, we cannot guarantee that cracks will not "telegraph" up through the **Flowsmooth**. All moving joints, such as expansion joints must be carried up through the new surface. Allow concrete to fully cure for 28 days before the use of this product. **Flowsmooth** is not a resurfacing material for highways, streets, areas exposed to continuous traffic, industrial applications subject to hard or metal-wheeled traffic. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your Janell representative.

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

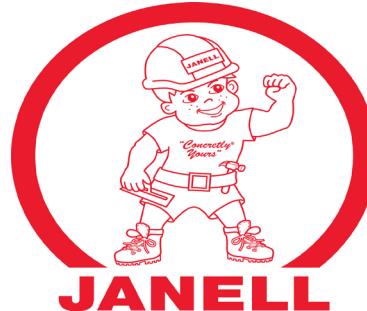
FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

Exclusively manufactured for Janell Inc. by US SPEC of Denver, CO.

Contact your Janell representative for the most current product information. Always read and follow the warnings and instructions on the most current technical data sheets.


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NOTICE OF LIMITED WARRANTY US MIX Co. (manufacturer) warrants to buyer that this product at the time and place of shipment is of good quality and conforms to the manufacturer's specifications in force on the date of manufacture when used in accordance with the instructions hereon. Manufacturer cannot warrant or guarantee any particular method of use, application or performance of the product under any particular condition. This limited warranty cannot be extended or amended by manufacturer's sales people, distributors or representatives or by any sales information, specifications of anyone other than the manufacturer. Liability under this warranty is expressly limited to refund of the purchase price. See product packaging for complete limitation of warranties and liability.

Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when 4.5 quarts mixing water is used



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03 30 53 MISC. CAST-IN -PLACE CONCRETE



Bonding Agent & Admix

Bonding Agent & Admixture

DESCRIPTION

Bonding Agent & Admix is a styrene butadiene concrete bonding agent and admixture that is specifically formulated to increase the flexural, bond and compressive strength of modified mixes. Both lab testing and field applications show increased performance in these key areas. Increasing these performance characteristics provides a more durable, long lasting repair. While traditional types of bonding agents (Acrylic, PVA, EVA) definitely improve the performance characteristics of patching mortars, **Bonding Agent & Admix** utilizes innovative technology to surpass these common materials. **Bonding Agent & Admix** can be used as an admixture to enhance adhesion of cementitious mortars as well as improve resistance to oil, water, salt and chemical penetration. **Bonding Agent & Admix** exhibits excellent resistance to freeze/thaw cycles and can be used for interior or exterior applications.

USES

Bonding Agent & Admix is ideal for bonding new concrete to new concrete or new concrete to old concrete in interior or exterior applications. **Bonding Agent & Admix** is specifically designed for use with cementitious compositions such as patching materials, grouts, masonry coatings, stucco coatings and masonry mortars to increase chemical resistance and performance.

BENEFITS

- Bonding Agent & Admixible: Increase tensile strength, flexural strength and chemical resistance over non-modified mortars
- Curing: Increase water retention properties
- Excellent Bonding Agent: Superior adhesion properties
- Freeze/Thaw Resistance: Increased resistance to dramatic climatic changes

STANDARDS

Bonding Agent & Admix meets and exceeds the requirements of ASTM C1059, Type I and II for Latex Bonding Agents.

SURFACE PREPARATION

All surfaces in contact with **Bonding Agent & Admix** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. If mechanical abrasion is needed refer to ICRI Guideline 310.2 for proper surface preparation methods. Substrate shall be dry. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

PHYSICAL PROPERTIES

Complies with National Volatile Organic Compound Emission Standards.

Appearance	Milky White Liquid
Solids Content	12.5%
pH	9.0
Specific Gravity	1.01
Lbs / Gal	9.0
Freeze/Thaw Stable	Yes
Dry Time	20 minutes @ 70°F (21°C)

MIXING

For best results, mix thoroughly before each use. Do not over agitate or use high speed mixing equipment. Stir **Bonding Agent & Admix** to a uniform blend when combined with water. When batching with **Bonding Agent & Admix**, always premix both the dry ingredients (sand and cement) and the wet ingredients separately. Next, slowly blend the dry ingredients into the wet ingredients to form a mortar of desired consistency.

PLACING

As a bonding agent for patching compounds, apply with a low pressure sprayer, brush or roller at a rate of 300 ft²/gal when diluted 1:1 with cool, clean potable water. A hand held pump sprayer or an airless industrial sprayer is acceptable. Apply evenly without puddling. Apply patch while **Bonding Agent & Admix** is still tacky.

STORAGE

Protect from freezing. Store material in an interior, cool, dry place above 40°F (4°C). Shelf life is one year in original, unopened container.

CLEAN-UP

Clean tools and equipment with warm, soapy water. After material has dried, it may be necessary to use solvents such as mineral spirits, toluene or xylene.

LIMITATIONS

In addition to the limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. High humidity and excessive moisture will retard curing time of **Bonding Agent & Admix** modified mixes.

Packaging: 1 gal (3.8 L) jug, 5 gal (18.9 L) pail, 55 gal (207.9 L) drum



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03 30 53 MISC. CAST-IN -PLACE CONCRETE



Bonding Agent & Admix Bonding Agent & Admixture

WARNING

May cause eye damage/irritation. May cause skin irritation. May cause respiratory irritation. Wear protective gloves and eye/face protection. Wash with plenty of water and soap thoroughly after handling. Avoid inhalation of vapors. Do not eat, drink or smoke when using this product. Use only outdoors or in a well ventilated area.

FIRST AID

If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: call a poison center or doctor/physician. If swallowed: contact a poison control center/doctor if you feel unwell. Rinse mouth. If on skin: wash with plenty of soap and water. If skin irritation or rash occurs, get medical advice. Take off contaminated clothing and wash it before reuse.

MANUFACTURER/TECHNICAL SERVICE

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03 30 53 MISC. CAST-IN -PLACE CONCRETE

Bonding Agent OTR

One Time Re-Emulsifiable Bonding Agent

DESCRIPTION

Bonding Agent OTR is a one time re-emulsifiable, ethylvinyl acetate (EVA) copolymer for use as a liquid bonding agent. **Bonding Agent OTR** has high strength in dry film and provides a better wet bond than acrylic or PVA products. Unlike PVA products, it allows for exterior use, increased water and alkali resistance and a lower film formation threshold. **Bonding Agent OTR** is considered less sticky, more workable and more versatile than acrylic bonders. **Bonding Agent OTR** will re-emulsify once and will not re-wet again. It can be used in interior or exterior applications not subject to water immersion.

USES

Bonding Agent OTR is an ideal primer for use with **Flowsmooth** or other cementitious compositions because of its one-time re-emulsification ability. **Bonding Agent OTR** can also be used as a bonding agent with portland or gypsum cement underlays, patches, mortars and coatings to increase adhesion, as well as flexural and tensile strength. **Bonding Agent OTR** will bond to concrete, masonry and brick.

BENEFITS

- Versatile: Bridges gap between acrylic and PVA products
- Excellent Bonding Agent: Superior adhesion properties
- Can be used when there is a delay of up to seven days prior to application of top coat
- Water-Based: Low odor, VOC compliant and easy clean-up
- Consistent: Strict Quality Control testing and standards

STANDARDS

Bonding Agent OTR exceeds the requirements of ASTM C1059 Type I and II for Latex Bonding Agents.

SURFACE PREPARATION

All surfaces in contact with **Bonding Agent OTR** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. If mechanical abrasion is needed refer to ICRI Guideline 310.2 for proper surface preparation methods. Substrate shall be dry. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, mix thoroughly before each use. Do not over agitate or use high speed mixing equipment. Stir **Bonding Agent OTR** to a uniform blend when combined with water.

PHYSICAL PROPERTIES

Complies with National Volatile Organic Compound Emission Standards.

Appearance	Milky White Liquid
Solids Content	55%
pH	4.5
Specific Gravity	1.1
Lbs / Gal	8.9
Freeze/Thaw Stable	No
Min. Film. Form	32°F (0°C)
Mechanical Stability	Excellent
Water Resistance	Good
Viscosity	2,300 CPS

PLACING

As a primer for **Flowsmooth** and **Flowtopper**, apply evenly with a soft push broom. Do not use paint rollers, mops or spray equipment. Prime the surface with **Bonding Agent OTR** at a rate of 500–600 ft²/gal when diluted 2:1 with cool, clean potable water. Coverage rate of **Bonding Agent OTR** will vary depending on the porosity of the surface. Extremely absorbent concrete may require two applications of **Bonding Agent OTR** to avoid the formation of "pinholes" in the underlayment. Allow **Bonding Agent OTR** to fully dry prior to placing underlayment.

As a bonding agent for patching compounds, apply with a low pressure sprayer, brush or roller at a rate of 300 ft²/gal (27.9 m²/3.8 L) when diluted 1:1 with cool, clean potable water. A hand held pump sprayer or an airless industrial sprayer is acceptable. Apply evenly without puddling. Allow **Bonding Agent OTR** to fully dry prior to placing patch.

STORAGE

Protect from freezing. Store material in an interior, cool, dry place above 40°F (4°C). Shelf life is one year in original, unopened container.

CLEAN-UP

Clean tools and equipment with warm, soapy water. After material has dried, it may be necessary to use solvents such as mineral spirits, toluene or xylene.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not use **Bonding Agent OTR** in areas subject to constant immersion, such as swimming pools.



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03 30 53 MISC. CAST-IN -PLACE CONCRETE



Bonding Agent OTR
One Time Re-Emulsifiable Bonding Agent

WARNING

May cause eye damage/irritation. May cause skin irritation. May cause respiratory irritation. Wear protective gloves and eye/face protection. Wash with plenty of water and soap thoroughly after handling. Avoid inhalation of vapors. Do not eat, drink or smoke when using this product. Use only outdoors or in a well ventilated area.

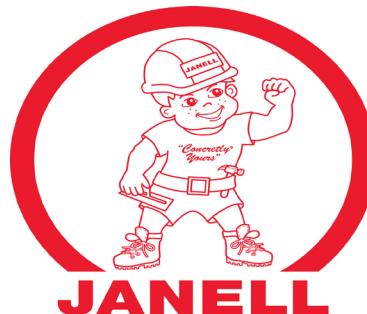
FIRST AID

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MANUFACTURER/TECHNICAL SERVICE

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Acrylic Latex BAA
Acrylic Latex Bonding Agent & Admixture

DESCRIPTION

Acrylic Latex BAA is a non re-emulsifiable, acrylic latex liquid bonding agent and admixture. **Acrylic Latex BAA** can be used as an admixture to enhance the performance properties of patching materials, grouts, mortars and cementitious coatings. **Acrylic Latex BAA** exhibits excellent resistance to freeze/thaw cycles and can be used for interior or exterior applications.

USES

- **Acrylic Latex BAA** is ideal for bonding new concrete to new concrete or new concrete to old concrete in interior or exterior applications. **Acrylic Latex BAA** is an acrylic polymer, water-based liquid specifically designed for use with cementitious compositions such as patching materials, grouts, masonry coatings, stucco coatings and masonry mortars to increase chemical resistance and performance.

BENEFITS

- Durable: Increase tensile strength, flexural strength and chemical resistance over non-modified mortars
- Curing: Increase water retention properties
- Excellent Bonding Agent: Superior adhesion properties
- Freeze/Thaw Resistance: Increased resistance to dramatic climatic changes

STANDARDS

Acrylic Latex BAA meets and exceeds the requirements of ASTM C1059, Type I and II for Latex Bonding Agents.

SURFACE PREPARATION

All surfaces in contact with **Acrylic Latex BAA** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. If mechanical abrasion is needed refer to ICRI Guideline 310.2 for proper surface preparation methods. Substrate shall be dry. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, mix thoroughly before each use. Do not over agitate or use high speed mixing equipment. Stir **Acrylic Latex BAA** to a uniform blend when combined with water. When batching with **Acrylic Latex BAA**, always premix both the dry ingredients (sand and cement) and the wet ingredients separately. Next, slowly blend the dry ingredients into the wet ingredients to form a mortar of desired consistency.

PHYSICAL PROPERTIES

Complies with National Volatile Organic Compound Emission Standards.

Appearance	Milky White Liquid
Solids Content	25%
pH	5.1
Specific Gravity	1.1
Lbs / Gal	9.0
Freeze/Thaw Stable	Yes
Min. Film. Form	59°F (15°C)

PLACING

As a bonding agent for patching compounds, apply with a low pressure sprayer, brush or roller at a rate of 300 ft²/gal when diluted 1:1 with cool, clean potable water. A hand held pump sprayer or an airless industrial sprayer is acceptable. Apply evenly without puddling. Apply patch while **Acrylic Latex BAA** is still tacky.

STORAGE

Protect from freezing. Store material in an interior, cool, dry place above 40°F (4°C). Shelf life is one year in original, unopened container.

CLEAN-UP

Clean tools and equipment with warm, soapy water. After material has dried, it may be necessary to use solvents such as mineral spirits, toluene or xylene.

LIMITATIONS

In addition to the limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. High humidity and excessive moisture will retard curing time of **Acrylic Latex BAA** modified mixes.

Packaging: 1 gal (3.8 L) jug, 5 gal (18.9 L) pail, 55 gal (207.9 L) drum



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03 30 53 MISC. CAST-IN -PLACE CONCRETE



Acrylic Latex BAA
Acrylic Latex Bonding Agent & Admixture

WARNING

May cause eye damage/irritation. May cause skin irritation. May cause respiratory irritation. Wear protective gloves and eye/face protection. Wash with plenty of water and soap thoroughly after handling. Avoid inhalation of vapors. Do not eat, drink or smoke when using this product. Use only outdoors or in a well ventilated area.

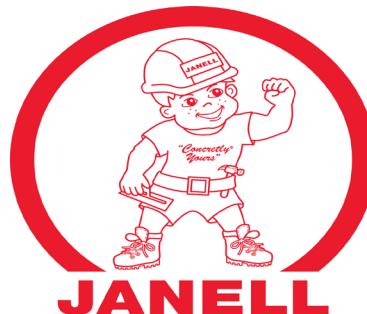
FIRST AID

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MANUFACTURER/TECHNICAL SERVICE

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