Hilti North America
5400 South 122nd East Avenue
Tulsa, OK 74146

P.O. Box 21148 I Tulsa, OK 74121-1148
T 1-800-879-8000 I F 1-800-879-7000
www.us.hilti.com

Date:_____

☐ SUBMITTAL

Project Name:_____

☐ SUBSTITUTION REQUEST

Location:_____

To:_____ T_____

Firm:_____ F_____

Address:_____ E_____

_____

Submitted By:_____ T_____

Firm:_____ F_____

Address:_____ E_____

_____

Submitted Product(s):_____

Original Product Specified:_____

Specification Location:_____

For Architect / Engineer Use:

☐ Accepted, no exceptions

☐ Revise and resubmit

☐ Accepted, make corrections noted

☐ Rejected, see notes below

Attached information includes product description, installation instructions and technical data needed for review and evaluation of the submittal request.

☐ ICC Report Included

☐ MSDS Included

Notes:_____

_____

_____

_____

Trades & Facilities

- Civil projects
- Concrete professionals
- Energy facilities
- General contractors/ construction managers
- Industrial plants
- Ornamental steel artisans
- Steel erectors

Applications

- Baseplate filling
- Bridge repair
- Doweling/rebar
- Grouting pre-cast
- Machine pad formation
- Railings and posts
- General purpose

Solid base to build on.

Construction Grouts

Hilti is proud to announce its new portfolio of Buy American-compliant construction grouts for the structural design and installation communities. These three highly-engineered product solutions honor Hilti's heritage and continuing commitment to innovation and service. Our new epoxy, precision and multipurpose grouts address a spectrum of commonly encountered construction applications.

Both Hilti Multipurpose and Precision Grouts meet ASTM C-1107 (Standard Specification for Packaged Dry, Hydraulic-Cement Grout; Nonshrink) and CRD – C621 (US Army Corps. of Engineers Specification for Non-Shrink Grout).

Hilti Epoxy Grout (EG) is a three-component, VOC- and butyl glycidyl ether-free, resin system.

Order Information

Description	Package Contents	Qty	Item No.
Epoxy Grout	65 lb bucket	1	00430898
Precision Grout	50 lb bucket	1	00431611
Precision Grout	50 lb bag; 1/2 pallet	25	00430896
Precision Grout	50 lb bag; pallet	50	03462771
Multipurpose Grout	50 lb bag; 1/2 pallet	25	00430894
Multipurpose Grout	50 lb bag; pallet	50	03462770

Technical Data	Epoxy Grout (PG)	Precision Grout (PG)	Multipurpose Grout (MG)
Compressive strength	ASTM D 695	ASTM C 109	ASTM C 109
8 hour	3,450 psi	-	-
16 hour	8,500 psi	-	-
1 day	10,450 psi	4,000 - 5,000 psi *	2,500 - 4,000 psi *
3 days	11,700 psi	6,000 - 8,000 psi *	4,500 - 5,800 psi *
7 days	13,500 psi	8,000 - 9,100 psi *	5,200 - 7,000 psi *
28 days	-	9,500 - 10,500 psi *	6,500 - 7,800 psi *
Cure schedule at 72° F (22° C)	-	ASTM C 191	ASTM C 191
Initial set	-	5 hr 30 min - 6 hr 45 min *	3 hr 15 min - 7 hr 00 min *
Final set	-	6 hr 05 min - 7 hr 45 min *	4 hr 45 min - 8 hr 00 min *
Working time	45 min	-	-
Gel time	90 min (ASTM D 2471)	-	-
Thickness			
Minimum	1.0 in	0.5 in	0.5 in
Maximum (unextended)	8.0 in	3.0 in	3.0 in
Maximum (w/ 50% by weight, 3/8 inch pea gravel)	Not allowed	10.0 in	10.0 in
Yield	0.44 ft3 / kit	0.40 - 0.44 ft3 / 50 lb bag *	0.40 - 0.44 ft3 / 50 lb bag *

* Values depend on recommended water content, ranging from fluid (lowest value within range) to flowable to plastic (highest value) conditions

Hilti. Outperform. Outlast.

Hilti, Inc. (U.S.) 1-800-879-8000 **www.us.hilti.com** • en español 1-800-879-5000
Hilti (Canada) Corporation 1-800-363-4458 • **www.hilti.ca**

Solid base to build on.

Multipurpose Grout

Hilti Multipurpose Grout is a Buy American-compliant, non-shrink, non-metallic ready to use grout ideal for general construction grouting applications. This versatile grout can be used at various consistencies including pumping and meets the standards of ASTM C-1107.
For applications requiring better flow characteristics and higher initial and ultimate strengths, refer to Hilti Precision Grout.

Advantages

- Conforms to ASTM C-1107 and CRD C-621
- Non-metallic
- Positive expansion, non-shrink
- Non-corrosive: contains no chlorides or other salts
- Pumpable
- Excellent freeze / thaw resistance

Order Information

Description	Package Contents	Qty	Item No.
Multipurpose Grout	50 lb. bag; small pallet	25	00430894
Multipurpose Grout	50 lb. bag; large pallet	50	00435833

Purposes and Uses

- Structural grouting of baseplates, columns, beams, precast concrete, dowels, etc.
- General construction grouting applications
- Can be used above or below grade
- Grouting applications where shrinkage must be eliminated and corrosion (staining) cannot be accepted

Technical Data	Multipurpose Grout			
Flow conditions	**Aspect**	**Plastic**	**Flowable**	**Fluid**
Water requirements	per 50 lb. bag	3.1 qts.	3.4 qts.	4.1 qts.
Compressive strength, psi (ASTM C 109)	1 day 3 days 7 days 28 days	4,000 6,000 7,000 7,800	3,500 5,100 6,000 7,000	2,500 4,500 5,200 6,500
Setting time (ASTM C 191)	Initial Final	3 Hrs 15 Min 4 Hrs 45 Min	5 Hrs 30 Min 6 Hrs 45 Min	7 Hrs 30 Min 8 Hrs 00 Min
Expansion (ASTM C 1090)	3 days 28 days	0.04% 0.04%	0.03% 0.03%	0.00% 0.01%
Yield, 65 lb. (29.5 kg)	• One 50 lb. (22.7 kg) bag yields approximately 0.44 ft^3 (0.012 m^3) at 4.1 qts. (3.9 L) of water • One 50 lb. (22.7 kg) bag extended with 25 lbs. (11.3 kg) of washed pea gravel, 3/8" (9 mm) yields approximately 0.60 ft^3 (0.017 m^3) at 4.1 qts. (3.9 L) of water			
Packaging	50 lb. (22.7 kg) moisture resistant bag			
Shelf life	12 months from date of manufacture when stored in original unopened container			

Application Instructions

Read product instructions and MSDS before use.

Preparation

The surfaces to be grouted must be solid, clean and free from oil, grease and other contaminants that may act as a bond breaker. Remove all loose material and laitance. Concrete surfaces must be sound and roughened to obtain proper bond. Prior to grouting, areas should be saturated to an SSD (saturated surface-dry) condition with water after which all excess water is removed.

The grout and the affected grouting area should be kept between 40°F and 95°F (4°C and 35°C) and shaded from direct sunlight until fully cured. For application temperatures outside this range please refer to ACI 305 for hot weather and ACI 306 for cold weather application advice or contact Hilti. Set times and strength developments are dependent on temperature. Hot temperatures will accelerate the setting process of the grout while cold temperatures will have a retarding effect.

All metal components to be in contact with grout must be free of rust, paint, or oils.

Formwork

The formwork must provide rapid, continuous grout placement and needs to retain grout without leakage. For baseplates, forms should be at least 1" (2.54 cm) higher than the bottom of the baseplate. Please refer to: ACI 351. The clearance between formwork and baseplate shall be sufficient to allow for a headbox. The clearance for remaining sides shall be one to three inches (25 to 75 mm).

Mixing

An optimal, homogeneous mix can only be achieved by means of mechanical mixing. For small quantities up to the size of a single bag a low speed drill (400-600 rpm) and paddle mixer is acceptable. For large quantities and continuous pours a mortar mixer or grout pump is recommended.

Place 3/4 of the required mixing water into the mixer, start the mixer and then slowly add the grout. After all the powder has been added put in the remaining 1/4 water necessary to achieve the desired consistency and continue mixing. For applications greater than 3" (76 mm) in thickness, up to 50% by weight of clean, washed and dried 3/8" (9 mm) pea gravel may be added.

Thoroughly mix for a minimum of 5 minutes until a lump free, uniform consistency is achieved.

Water requirements:

Consistency Amount per 50 lb. (22.7 kg) bag
Plastic ..... 3.1 qts. (2.9 L) clean potable water
Flowable ..... 3.4 qts. (3.2 L) clean potable water
Fluid ..... 4.1 qts. (3.9 L) clean potable water

Application

Immediately after mixing place grout into the form, pouring from one side and allowing it to flow to the opposite and adjacent sides thereby avoiding air entrapment. Provide vent holes where needed to prevent air entrapment. Compaction can be achieved by rodding, chaining or light vibration.

Minimum application thickness per pour: 1/2" (13 mm)

Maximum application thickness per pour, unextended: 3" (76 mm)

Maximum application thickness per pour, with extension of pea gravel, 3/8" (9 mm) by 50% by weight: 10" (254 mm)

Finishing

Forms may be removed after the grout has hardened to an initial set and is completely self-supporting. This time period will vary according to temperature. When grouting at higher temperatures, shade the area to be grouted and prevent rapid water loss by covering the exposed grout surfaces with wet burlap during the first 48 hours or apply an acceptable water based cure and seal agent.

For placement and curing please also refer to: ACI 351.

Clean-up

Clean equipment with water and detergent immediately after use.

Storage

Always keep in cool dry place unexposed to sunlight.

Limitations

- Do not use if the bag is damaged
- Do Not re-temper after mixing
- Do Not over water or add other cements or additives

Hilti. Outperform. Outlast.

Product name:	**Hilti Multipurpose Grout** **Hilti Precision Grout**
Description:	Portland cement based construction grout
Supplier:	Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121
Emergency # (Chem-Trec.):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	TLV:	PEL:	STEL:
Portland Cement	65997-15-1	10 mg/m^3 (T)	5 mg/m^3 (R)	NE
Silicon Dioxide (sand)	14808-60-7	0.025 mg/m^3 (R)	10 mg/m^3 (R) % SiO_2 +2	NE

Abbreviations: PEL = OSHA Permissible Exposure Limit. **TLV** = ACGIH Threshold Limit Value. **STEL** = Short Term Exposure Limit. **NE** = None Established. **(T)** indicated “total dust”. **(R)** indicates “as respirable dust”.

PHYSICAL DATA

Appearance:	Gray sandy powder.	**Odor:**	No odor.
Vapor Density:	Not determined.	**Vapor Pressure:**	Not determined.
Boiling Point:	Not determined.	**VOC Content:**	None.
Evaporation Rate:	Not determined.	**Solubility in Water:**	Not determined.
Specific Gravity:	3.1	**pH:**	Not determined.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Not applicable.	**Flammable Limits:**	Not applicable.
Extinguishing Media:	As suitable for surrounding materials.		
Special Fire Fighting Procedures:	None known.		
Unusual Fire and Explosion Hazards:	Thermal decomposition may produce CO and CO_2.		

REACTIVITY DATA

Stability:	Stable.	**Hazardous Polymerization:**	Will not occur.
Incompatibility:	None known.		
Decomposition Products:	Thermal decomposition may produce CO and CO_2.		
Conditions to Avoid:	Moisture.		

HEALTH HAZARD DATA

Known Hazards:	**Acute:** Alkaline material; may cause skin/eye irritation or burns. **Chronic:** Excess exposure to dusts by inhalation for extended periods of time may result in the development of pulmonary diseases including silicosis.
Routes of Exposure:	Dermal. Inhalation. Ingestion
Signs and Symptoms of Exposure:	**Eyes:** Can cause irritation/watering and burns. **Skin:** Can cause irritation and possibly chemical burns. **Inhalation:** May cause respiratory tract irritation. **Ingestion:** May be harmful is swallowed. May cause stomach distress, nausea or vomiting.
Carcinogenicity:	IARC classifies crystalline silica (quartz sand) as a Gp I carcinogen based upon evidence among workers in industries where there has been long-term and chronic exposure (via inhalation) to silica dust; e.g. mining, quarry, stone crushing, refractory brick and pottery workers. The nature and intended use of this product does not pose a cancer risk from silica. A properly fitted and NIOSH-approved dust mask will greatly reduce the potential for exposure to silica if dusts are generated during mixing.
Medical Conditions Aggravated by Exposure:	Eye, skin, and respiratory conditions.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	Flush with plenty of water for at least 15 minutes. Contact a physician if symptoms occur.
Skin:	Flush with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Contact a physician is symptoms occur.
Inhalation:	Move victim to fresh air. Call a physician if symptoms persist.
Ingestion:	Not normally a route of exposure. Give plenty of water to drink. Contact a physician immediately. Do not induce vomiting unless directed by a physician.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/ exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Chemical goggles recommended.
Skin Protection:	Impermeable gloves recommended. Other protective clothing as required to prevent skin contact.
Respiratory Protection:	Use a NIOSH-approved dust mask when dust cannot be controlled with ventilation.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool dry location. Avoid contact with eyes, skin, or clothing. Avoid generating of breathing dust. Wash hands after handling and before eating, drinking, or smoking. For industrial use only. Keep out of reach of children.
Spill Procedures:	Sweep up and place in dust tight container.

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 2, Flammability 0, Reactivity 0, PPE A
DOT Shipping Name:	Not regulated.
ICAO / IATA Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product does not contain any toxic chemicals which are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS

Customer Service:	1 800 879 8000	**Technical Service:** 1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x1003704)	
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)	

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.