CEMENT-BASED PRODUCTS	
V-1® NON-SHRINK	A highly flowable product which develops extremely high compressive strengths in a very short time. The product will not shrink, and is perfect for grouting precision machinery as well as anchor bolt setting and other machinery grouting applications.
V-2® CONSTRUCTION	A flowable product intended for use in general purpose construction applications. It is chloride-free, and will not shrink below its original mixing volume.
UNISORB® CONCRETE REPAIR COMPOUND (UCRC)	A flowable, fast setting product designed for setting anchor bolts, and filling holes and large cracks in concrete floors, roads, sidewalks, etc.
STRUCTURAL REPAIR	A self-bonding, quick setting, trowelable wall and ceiling patching compound.
EPOXY PRODUCTS	
STANDARD V-100®	A superior quality product with excellent flowability, high resistance to impact, and extremely rapid cure time. It is an excellent choice where very high strength and low grout quantities are preferred.
DEEP POUR V-100®	A highly flowable product intended for use where larger pours are required, providing excellent compressive strength and rapid cure time.
ADHESIVE V-100®	A product developed to be used as a trowelable adhesive to place under steel plates, bonding them to concrete floors. This can be used in either temporary or permanent installations. This product bonds to most surfaces.
ACID RESISTANT V-100®	A product designed for applications requiring high mechanical strength as well as resistance to sulfuric acid, making it ideal for mining and oil field use.
DCR V-100®	A product designed for rail installations which require extraordinarily high strengths combined with resistance to temperature and humidity, and which will allow pours with 3/4" to 5" cross-sections.
CR V-100®	A product designed for crane rail and other extraordinarily severe applications where ultra-high strength combined with resistance to temperature and humidity are important.
JOINT FILLER V-100®	A product developed for sealing the exposed edge of Inertia Block isolation material at the floor level. It cures to a flexible solid state, preventing transmission of vibrations while protecting the edge of the isolation pad.
HI-TEMP V-100®	A product designed for applications where high mechanical strength and high temperature resistance over regular epoxy grout is required. It has a maximum service temperature of 325° F.
XTRA-TEMP V-100®	A product developed for applications where high mechanical strength and very high temperature resistance are required. It has a maximum service temperature of 425° F.

STANDARD V-100® EPOXY GROUT

STANDARD V-100®

A two-component, 100% solids, filled epoxy resin system of superior quality, offering excellent flowability, high resistance to impact and extremely rapid cure.

This grout is the product of choice where ease of placement, suitability for use under extremely high loads, and minimal cross section thicknesses are necessary. Other materials such as concrete or weaker grouts may develop structural flaws when subjected to high concentrated loads.

Standard V-100® is a perfect choice for:

- Grouting machine bases
- Setting anchor bolts
- Setting leveling wedges
- Setting sole plates
- Repairing deteriorated foundations

The rapid strength development of Standard V-100® permits loads to be applied much sooner after grouting than with other materials. Its excellent flowability permits use in extremely thin cross sections.

IMPORTANT ADVANTAGES:

PERMANENCE

Eliminates need for periodic regrouting. Saves downtime, labor and lost production. Resistance to oils, greases, acids, alkalies and solvents is much greater than that of cement-based materials. Tensile and flexural strengths are at least 15 times that of concrete and compressive strength is about 5 times that of concrete.

PACKAGING/CONVENIENCE

Standard V-100® is packaged in a kit with the base resin packed in an oversized container large enough to serve as a mixing vessel. The hardener portion of the kit is added to the base resin at the job site. A stirring paddle is included which will fit a standard 1/4" electric drill. After a mix time of 2-3 minutes a 15 minute working time remains for placement of the material. For Gel Time vs. Temperature and Mixed Viscosity vs. Temperature see next page.

PHYSICAL PROPERTIES	
Color	Gray Green
Compressive Strength (ASTM D-695)	
6 hours	9,000 psi
3 days	15,250 psi
7 days	16,800 psi
Compression Modulus (millions)	
6 hours	0.63
3 days	0.86
7 days	1.10
Tensile Strength	4,260 psi
Heat Distortion Temperature (ASTM D-648)	132° F
Maximum Service Temperature	150° F
Work Life @ 77° F	10-15 minutes
Tensile Modulus (millions)	1.13
Flexural Strength	6,800 psi
Mixed Viscosity	6,000 cps
Adhesion Slant Shear test	4,200 psi
Dielectric Constant (ASTM D-150) @ 25° C - 1kHz	@ 5.4
Dissipation Factor (ASTM D-150) @ 25° C - 1 kHz	0.015
Volume Resistivity (ASTM D-257) @ 25° C	2×10^{14} ohms cm
Dielectric Strength (ASTM D-149)	350 volts/mil
Specific Gravity	1.7
Hardness (Shore D)	90
Density (cured)	105 lbs./cu. ft.
Creep Test (ASTM C-1181) 600 psi @ 150° F cured 24 hours @ 70° F 16 hours @ 150° F	1.95×10^{-2} in./in.

Physical properties shown are the result of independent laboratory testing performed per industry recognized test procedures. Laboratory properties aid in determining suitability of the product for the intended application. Field test results may vary due to procedures or ambient conditions such as temperature and humidity. Laboratory reports are available on request.

Consult the specific Material Safety Data Sheets (MSDS) for all safety data.

STANDARD V-100® EPOXY GROUT

EASY, FLOW-INTO-PLACE INSTALLATION

Flows into spaces under machines of ½" or less and fills completely before solidifying.

REGROUTS

No need to move equipment or break connections. Just raise equipment ½ to ¾" and regrout with Standard V-100®.

MINIMUM MATERIAL USAGE

Maximum thickness up to 1" (unconfined), up to 1½" under plate. No minimum thickness.

SMOOTHER MACHINE OPERATION

Standard V-100® survives impact and vibration as well as reinforced rubber materials and will not delaminate under the most severe shock loads.

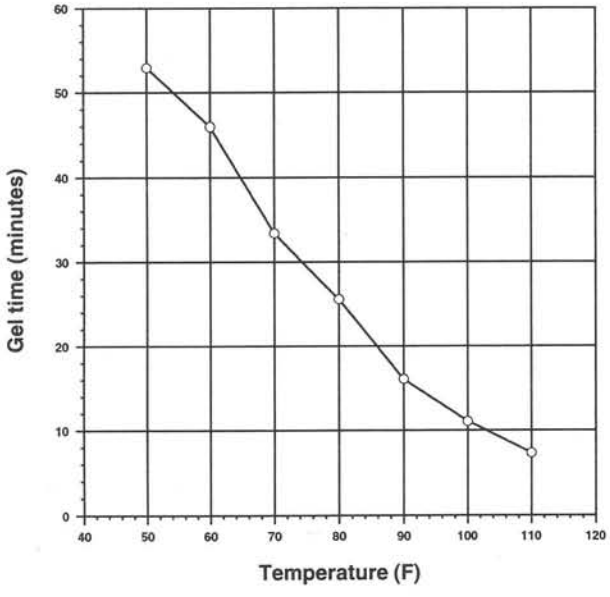
FAST CURE

At 77° F a ½" thickness will set up for use in 8 hours.

PACKAGING/YIELD
11# Kit = .10 cu. ft. (173 cu. in.)
22# Kit = .21 cu. ft. (360 cu. in.)
55# Kit = .53 cu. ft. (916 cu. in.)

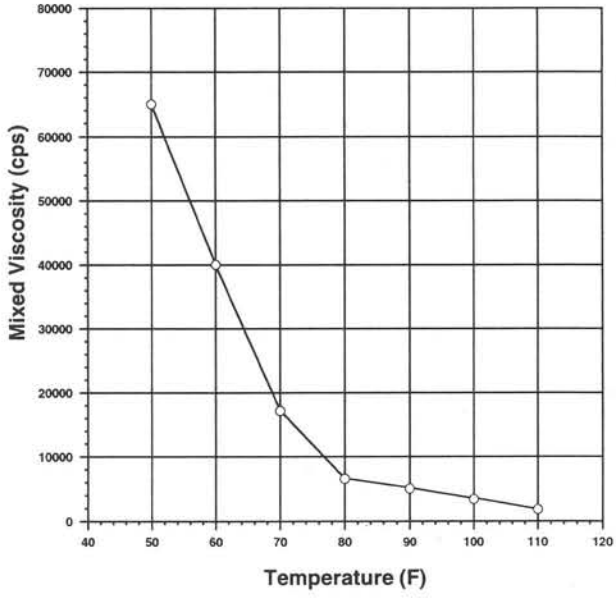
TEMPERATURE CONSIDERATIONS

STANDARD V-100® GEL TIME vs TEMPERATURE



This graph shows gel time as a function of temperature. With the curve being basically linear, a good rule of thumb is 30 minutes (approx.) at room temp. (72° F) and varies about 1 minute per degree temperature change.

STANDARD V-100® MIXED VISCOSITY vs TEMPERATURE



This graph shows viscosity is relatively constant above 80° F, but changes rather dramatically between 70° F and 50° F. This can be very noticeable when pouring on concrete which may be 10-20° F cooler than the ambient air temperature.

DEEP POUR V-100® EPOXY GROUT

DEEP POUR V-100®

A three-component, 100% solids, epoxy resin system specifically designed for use where pour sections exceed 2" thereby permitting the use of a more highly filled material. Deep Pour V-100® offers excellent compressive strengths coupled with rapid cure times for applications where larger volumes are required.

Deep Pour V-100® is ideally suited for:

- Deep grouting of large machine bases
- Setting large anchor bolts
- Setting large leveling wedges
- Setting large sole plates
- Deep repairs in foundations

This grout is specifically formulated for pours as thick as 6" and develops the same high strength and chemical resistance as Standard V-100®. Ease of mixing and fast cure makes this epoxy grout ideal for minimizing down time in industries where equipment must continue running such as in steelmaking, manufacturing and power generation.

IMPORTANT ADVANTAGES:

PERMANENCE

Eliminates need for periodic regrouting. Saves downtime, labor and lost production. Resistance to oils, greases, acids, alkalies and solvents is much greater than that of cement-based materials. Tensile and flexural strengths are at least 11 times that of concrete and compressive strength is about 4 times that of concrete.

PACKAGING/CONVENIENCE

The grout is packaged in convenient three-part kits consisting of a resin container, a hardener container and two bags of aggregate. A standard drum-type cement mixer or mortar mixer may be used.

EASY, FLOW-INTO-PLACE INSTALLATION

Flows into spaces under machines, fills completely before solidifying and is self leveling.

FAST CURE

At 70° F a 6" thickness will be ready for use in 24 hours.

SMOOTHER MACHINE OPERATION

Deep Pour V-100® survives impact and vibration as well as reinforced rubber materials and will not delaminate under the most severe shock loads.

REGROUTS

No need to move equipment or break connections. Just raise equipment and regrout with Deep Pour V-100®.

PHYSICAL PROPERTIES	
Compressive Strength (ASTM D-695)	
1 day	11,000 psi
3 days	11,600 psi
7 days	13,800 psi
Tensile Strength (ASTM D-638)	1,500 psi
Tensile Modulus	7×10^4
Mixed Viscosity	32,000 cps
Heat Distortion Temperature	136° F
Maximum Service Temperature	250° F
Work Life @ 70° F	60 minutes
Flexural Strength	4,500 psi
Flexural Modulus of Elasticity	2.1×10^6 psi
Coefficient of Thermal Expansion (ASTM D-696)	1.7×10^{-5} IN/IN/° C
Creep Test (ASTM C-1181)	
600 psi @ 150° F cured 24 hours @ 70° F 16 hours @ 150° F	7.09×10^{-3} IN/IN

PACKAGING/YIELD
Three Part Kit = 1 cu. ft. (1,728 cu. in.)

Physical properties shown are the result of independent laboratory testing performed per industry recognized test procedures. Laboratory properties aid in determining suitability of the product for the intended application. Field test results may vary due to procedures or ambient conditions such as temperature and humidity. Laboratory reports are available on request.

Consult the specific Material Safety Data Sheets (MSDS) for all safety data.

ADHESIVE AND LOW TEMP V-100® EPOXY GROUT

ADHESIVE V-100®

A two-component, 100% solids, epoxy resin system. This versatile, easy-to-handle adhesive has a paste-like consistency, short cure time and bonds to most surfaces.

Adhesive V-100® is ideal for:

- Bonding steel plates to concrete
- Bonding of wood
- Bonding of plastic
- Bonding of ceramic tiles
- Bonding of fiberglass
- Industrial filling or patching
- Vertical and overhead surfaces

PACKAGING/CONVENIENCE

Adhesive V-100® is packaged in a convenient kit consisting of one gallon of resin and one gallon of hardener. To use, simply mix a portion of the resin and the hardener at a 1:1 ratio-by-volume in a separate container. Be sure to use separate trowels for the resin and hardener. Mix thoroughly and apply. Do not mix both containers together unless you are using all of the adhesive in one application within the allowed work life. Containers with unmixed material can be resealed for future use. Mixed adhesive cannot be resealed for future use.

WORK LIFE

The work life of this adhesive material (the time you have before it sets) will vary according to the air temperature. Average work life at 70° F is approximately 45 minutes for one (1) pint of mixed material. In cooler weather you have more time to work with the material. In hot weather you have less time.

CURE TIME

The average cure time at 70° F will be 4-5 hours. Air temperature above and below 70° F, as well as the temperature of the surfaces on which the adhesive is being applied, will affect cure time. Prewarming the parts or surfaces will accelerate the cure time, but do not heat the surfaces above 100° F.

PACKAGING/YIELD
28# Kit = .26 cu. ft. (450 cu. in.)

PHYSICAL PROPERTIES	
Compressive Strength (ASTM D-695)	14,000 psi
Tensile Strength (ASTM D-638)	5,200 psi
Flexural Strength (ASTM D-790)	11,000 psi
Tensile Shear Strength (ASTM D-1002)	2,400 psi
Heat Distortion Temperature (ASTM D-648)	147° F
Hardness (Shore D)	90
Gel Time (ASTM D-2471)	
14 fl oz	1 hour @ 77° F
1/16" film	2 hours @ 77° F
Recommended Thickness	1/32" to 1/4"

ACID RESISTANT V-100®

A three-component, 100% solids, epoxy resin system specifically designed for applications requiring high mechanical strength and resistance to sulfuric acid. Formulated for use in environments with up to 10% concentrations of sulfuric acid, Acid Resistant V-100® is ideal for mining and oil field applications.

It is resistant to most fuels, oils and water, and offers the same features of our other V-100® epoxy grouts, i.e., high strength, ease of mixing, self-leveling and fast cure.

This grout is conveniently packaged in kits containing pre-measured containers of resin and hardener, the correct amount of filler.

The work life (the time you have to pour before it sets) of Acid Resistant V-100® Epoxy Grout will vary with ambient temperatures. The average work life at 70° F will be 20 minutes. In cooler weather you will have more time to pour material, and in hotter weather you will have less time.

PACKAGING/YIELD
63# Kit = .50 cu. ft. (864 cu. in.)
125# Kit = 1.00 cu. ft. (1,728 cu. in.)

PHYSICAL PROPERTIES	
Compressive Strength (ASTM D-695)	20,000 psi
Tensile Strength (ASTM D-638)	3,000 psi
Flexural Strength (ASTM D-790)	6,000 psi
Mixed Viscosity @ 77° F	20,000 cps
Heat Distortion Temperature (ASTM D-648)	227° F
Hardness (Shore D) (ASTM D-2240)	90
Gel Time	50-60 min. @ 72° F
Work Life	20 min. @ 72° F
Maximum Service Temperature	325° F
Maximum Depth Per Pour	2 in.
Creep Test (ASTM C-1181) 600 psi @ 150° F cured 24 hours	5.59×10^{-3} in./in.

DCR-V-100® AND CR V-100® EPOXY GROUT

DCR V-100®

A three-component (resin, hardener and 2 bags of aggregate), 100% solids, epoxy resin system specifically designed for applications requiring high mechanical strength due to high unit loading, typical in die cart rail and crane rail systems. The tremendous compressive strength characteristic makes it ideally suited for in-plant rail installations of all types. It is recommended for applications varying from approximately ¾" to 5" cross sections. Flow characteristics of DCR V-100® allow easy placement within this thickness range.

IMPORTANT ADVANTAGES

- Pours can be done in one step, unlike other formulas that may require 2 or 3 pours per cross section.
- Flowability allows easy placement around and under rails to be embedded in floors.
- Mixing can be done with a paddle mixer or drum type cement mixer.
- Unlike other ordoriferous epoxy products, DCR V-100® has a non-objectional aroma.
- Easy cleanup can be accomplished with water and detergent prior to set.
- The average work life at 70° F will be 20 minutes. This will vary with ambient temperatures.

PACKAGING/YIELD
63# Kit = .50 cu. ft. (864 cu. in.)
125# Kit = 1.00 cu. ft. (1,728 cu. in.)

PHYSICAL PROPERTIES	
Compressive Strength (ASTM D-695)	20,000 psi
Tensile Strength (ASTM D-638)	3,000 psi
Flexural Strength (ASTM D-790)	6,000 psi
Heat Distortion Temperature (ASTM D-648)	227° F
Maximum Service Temperature	325° F
Hardness (Shore D) (ASTM D-2240)	90
Mixed Viscosity (ASTM D-2393)	20,000 cps
Gel Time	50-60 min. @ 72° F
Work Time	20 min. @ 72° F
Creep Test (ASTM C-1181) 600 psi @ 150° F cured 24 hours	5.59×10^{-3} in./in.
Maximum Depth Per Pour	5 in.

CR V-100®

A two-component, 100% solids, epoxy resin system specifically developed for crane rail and other extraordinarily severe applications, where exposure to extreme loads, elevated temperatures and high humidity shortens the service life of other grouting materials. Typical pour cross sections range from ¼" to 2" with the material shipped in an easily mixed two-part kit.

It is resistant to most fuels, oils, chemical and water absorption, making it ideal for heavy industrial use outdoors. It offers the same features of our other V-100® epoxy grouts, i.e., high strength, ease of mixing, self-leveling and fast cure.

PHYSICAL PROPERTIES	
Compressive Strength (ASTM D-695)	18,500 psi
Tensile Strength (ASTM D-638)	4,900 psi
Flexural Strength (ASTM D-790)	8,500 psi
Heat Distortion Temperature (ASTM D-648)	150° F
Maximum Service Temperature	250° F
Linear Shrinkage (ASTM D-2566)	0.0001 in./in.
Hardness (Shore D) (ASTM D-2240)	90
Mixed Viscosity (ASTM D-2393)	16,000 cps
Gel Time	60 min. @ 77° F
Work Time	45 min. @ 77° F
Creep Test (ASTM C-1181) 600 psi @ 150° F cured 24 hours	1.09×10^{-2} in./in.
Maximum Depth Per Pour	2 in.

PACKAGING/YIELD
28# Kit = .25 cu. ft. (431 cu. in.)
56# Kit = .50 cu. ft. (862 cu. in.)

Physical properties shown are the result of independent laboratory testing performed per industry recognized test procedures. Laboratory properties aid in determining suitability of the product for the intended application. Field test results may vary due to procedures or ambient conditions such as temperature and humidity. Laboratory reports are available on request.

Consult the specific Material Safety Data Sheets (MSDS) for all safety data.

JOINT FILLER V-100® & HI-TEMP V-100® EPOXY GROUT

JOINT FILLER V-100®

A two-component, 100% solids, filled epoxy system designed to seal the exposed edge of Inertia Block isolation material while providing an excellent appearance to the installation. It cures overnight at room temperature to a gray, cement colored flexible mastic.

Joint Filler V-100® is conveniently packaged in a 2 gallon kit, and its 1:1 mixing ratio allows the mixing of the amount necessary for the application.

This material is resistant to and prevents the entry of water, lubricants, coolants and other fluids into the joint. It is also tough and puncture resistant, effectively keeping chips and other debris from entering the isolation joint. When cured, the material remains pliable enough to prevent the unwanted transmission of vibrations between the Inertia Block and the shop floor.

PHYSICAL PROPERTIES	
Tensile Strength (ASTM D-412)	430 psi
Hardness (Shore A)	60
Work Time @77°F	1 hour
Cure Time	24 Hours
Mixed Viscosity	2,2000 cps

PACKAGING/YIELD
2 Gal. Kit = .25 cu. ft. (432 cu. in.) (½" x ½" groove up to 144 linear ft.)

HI-TEMP V-100®

A two-component, 100% solids, epoxy resin system specifically designed where higher mechanical strength and high temperature stability over regular epoxy grouts is required.

Hi-Temp V-100® is resistant to most fuels, oils, water, and attack by acids and caustic solutions, making it ideal for marine or power plant applications.

CONVENIENT PACKAGING

This epoxy grout product is conveniently packaged in kits with a mixing paddle and pre-measured containers of resin and hardener. To use, pour the hardener into the resin and mix 3 to 4 minutes until a uniform color appears.

WORK LIFE & CURE TIME

The work life (the time you have to pour before it sets) of Hi-Temp V-100® Epoxy Grout will vary with ambient temperatures. The average work life at 77°F will be 30-40 minutes. In cooler weather you will have more time to pour material, and in hotter weather you will have less time. Cure time (the time before the grout is strong enough for use) will also depend on the air temperature and the temperature of the floor and machinery being grouted. The average cure time from the last pour to machinery start up will be 24 hours at 70°F. In cool weather the grout will cure and develop strength more slowly than in hot weather. Temperature of the foundation concrete should be taken into consideration along with the air temperature when calculating the cure time needed.

PHYSICAL PROPERTIES	
Compressive Strength (ASTM D-695)	19,000 psi
Tensile Strength (ASTM D-638)	4,500 psi
Flexural Strength (ASTM D-790)	9,200 psi
Mixed Viscosity (ASTM D-2393)	13,000 cps
Heat Distortion Temperature (ASTM D-648)	266°F
Maximum Service Temperature	325°F
Hardness (Shore D)	90
Gel Time @ 72°F	40-50 mins.
Creep Test (ASTM C-1181) 600 psi @ 150°F cured 24 hours	1.62×10^{-3} in./in.

PACKAGING/YIELD
21# Kit = .20 cu. ft. (345 cu. in.) 47# Kit = .45 cu. ft. (776 cu. in.)

Physical properties shown are the result of independent laboratory testing performed per industry recognized test procedures. Laboratory properties aid in determining suitability of the product for the intended application. Field test results may vary due to procedures or ambient conditions such as temperature and humidity. Laboratory reports are available on request.

Consult the specific Material Safety Data Sheets (MSDS) for all safety data.

EXTRA HI-TEMP V-100® EPOXY GROUT

XTRA-TEMP V-100®

A two-component, 100% solids, epoxy resin system specifically designed for applications where mechanical strength and very high temperature stability are required. This grout is resistant to most fuels, oils, water, and attack by acids or caustic solutions.

This product is conveniently packaged in kits containing pre-measured amounts of resin, hardener and a mixing paddle. It is also available in bulk, with the base resin packaged in 55 gallon drums and the hardener packaged in 5 gallon pails.

The work life (the time you have to pour before it sets) will vary with ambient temperatures. The work life at 77°F will be 50-60 minutes. In cool weather you will have more time to pour material and in hot weather you will have less time.

Cure time (the time it takes before the grout develops its ultimate physical properties) is also dependent on ambient temperatures and service temperature. With the recommended cure temperature the machinery start up may be in 24 hours. The grout may also be cured for 7 days at ambient temperatures with the service temperature providing the heat for the final cure.

PHYSICAL PROPERTIES	
Compressive Strength (ASTM D-695)	20,000 psi
Tensile Strength (ASTM D-648)	5,500 psi
Flexural Strength (ASTM D-790)	7,900 psi
Mixed Viscosity	7,000 cps
Heat Distortion Temperature (ASTM D-648)	320°F
Maximum Service Temperature	425°F
Hardness (Shore D) (ASTM D-2240)	90
Creep Test (ASTM C-1181) 600 psi @ 150°F cured 24 hours	1.01 x 10^{-3} in./in.

CURE CYCLE
(To Develop Ultimate Properties)
Soak for 8 hrs. @ 75°F.
Soak for 4 hrs. @ 200°F.
Soak for 4 hrs. @ 400°F.

APPLICATION CHARACTERISTICS			
Characteristic	Part A	Part B	Part A/B
Color	Tan	Blue	Green
Density lbs./gal.	14.5	7.8	13.8
(Kg./1//)	(1.739)	(0.939)	(1.655)
Mixing Ratio Parts by:			
Weight	15	1	—
Volume	8	1	—
Working Time @ 77°F (25°C) 50 minutes in a 5 lb. mass			
Peak Exothermic Temperature 170°F in a 5 lb. mass			

PACKAGING/YIELD
20# Kit = .19 cu. ft. (330 cu. in.)
44# Kit = .43 cu. ft. (735 cu. in.)

Physical properties shown are the result of independent laboratory testing performed per industry recognized test procedures. Laboratory properties aid in determining suitability of the product for the intended application. Field test results may vary due to procedures or ambient conditions such as temperature and humidity. Laboratory reports are available on request.

Consult the specific Material Safety Data Sheets (MSDS) for all safety data.

BASIC APPLICATION TECHNIQUES (EPOXY)

These are the basic application techniques to follow when using most UNISORB® Epoxy grouting products. Refer to the specific Product Data sheet and instructions on the label for information relevant to the product being used.

CONCRETE SURFACE PREPARATION

Remove all oil, grease and contamination from concrete. Remove loose and weak concrete from the foundation surfaces by chipping down to sound aggregate. Light sandblasting or acid etching may be sufficient but must be completely neutralized before grouting. The concrete must be dry and have no water in anchor bolt holes.

METAL SURFACE PREPARATION

Base plates or soleplates to be grouted should be sanded or blasted to a bare metal condition. If it is impossible to grout within 8 hours of sandblasting, the surface should be primed with a high-quality epoxy primer.

FORMING

If not already recessed, dam the grout area and carefully seal the forms. A heavy body caulking compound such as RTV Silicone should be used to provide a watertight condition, and for easy removal after the grout has set up. Install the dam high enough to allow the grout to build at least a 2" head. The forms should be placed between 2-6" away from the perimeter of the machine base to allow for the air to escape and to provide for a grout shoulder around the base plate.

PREPARATION OF EPOXY GROUT

Store the material between 70-80° F. Do not mix until ready to pour. For pot life information consult the specific Product Data Sheet. Generally, two people working with the grout (one mixing and one pouring) is the best procedure.

TWO PART EPOXY

When ready to mix the grout, first thoroughly pre-mix the resin. While stirring the resin, slowly add the hardener. To prevent splashing, pour in a steady stream approximately 6" high. Mixing time should be about 3-4 minutes. Be sure to mix completely around the pail perimeter, moving the stirrer up and down and at a slight angle until a uniform color appears with no streaks. A jiffy mixer, or similar stirrer in a variable speed drill works best for most epoxy grouting materials. Stirrer blades must be long enough to touch the bottom of the pail.

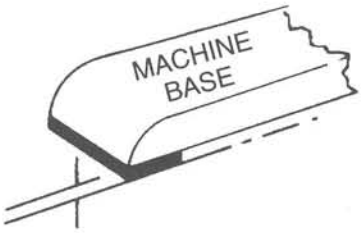
THREE PART EPOXY

The three part formula contains a resin, a hardener and a grout filler. When ready to mix the grout, pour the resin in a drum of at least 10 gallon capacity. Using a jiffy mixer or a variable speed drill, thoroughly mix the hardener into the resin. Slowly add the two bags of aggregate filler so that all surfaces become wet as it is mixed. Continue to mix until there are no dry streaks. A mortar mixer may be used, but do not use a rotating drum-type. Do not add water.

(cont.)

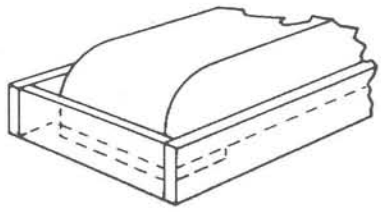
APPLICATION TECHNIQUES FOR EPOXY GROUTING

1



LEVEL MACHINE WITH 1/4" - 3/4" CLEARANCE

2

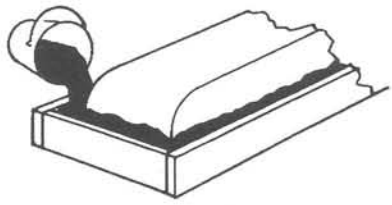


DAM PERIMETER LEAVING ADEQUATE VENTING

3

MIX GROUT (2-3 MINUTES)

4



POUR UNDER MACHINE AND LET HARDEN

POURING

Always pour from one spot to prevent air inclusions under the machine. When the resin has penetrated to the other side of the base, move the pouring spout along the same side of the base to where the resin has stopped. Pour until the resin is at least ½" up the side of the base. When the resin has filled to the bottom and adjacent sides of the base, it is acceptable to fill in by pouring around the base perimeter. The epoxy will self-level, but may need to be helped to flow under the base, especially in colder weather. Always sweep from one side of the base toward the other to eliminate entrapped air.

WORK LIFE

The work life (the time you have before initial set) depends on the air temperature, the ambient temperature of the foundation and machinery, and the temperature of the grout. The average work life at 77° F can vary from 15 minutes to 1 hour, depending on the specific epoxy grouting product. In cooler weather you will have more time to place the material. In warmer weather you will have less time.

CURE TIME

The cure time (the time until the grout is strong enough for use) is also temperature dependent. In hot weather the grout will cure and develop strength more quickly. In cool weather the grout will cure and develop strength more slowly. Special precautions must be taken during cold weather (below 50° F) to assure that the grout will cure properly. Consult the factory for details.

REMOVING FORMS

If the temperature has been maintained at 70° F during the entire procedure, it is possible to remove the forms within 24 hours. After removing the form anchoring devices, a sharp rap should be enough to separate the forms from the base grout. Bolts can then be checked for tightness and the machine placed in operation.

CLEAN UP

Because of the presence of the filler, the uncured Deep Pour V-100® may be cleaned from tools and equipment with a water rinse. For all other uncured V-100® epoxy grouts use isopropyl alcohol, xylol, ketones, or methylene chloride. Be sure to follow safety instructions on labels when using these solvents.

PRECAUTIONS

Epoxy resins may sensitize some people. When using resins, wear plastic or rubber gloves and/or coat exposed skin with a protective cream. Avoid inhaling fumes and keep the area well ventilated. Wash skin and clothes with soap and water only. If resin splashes in eyes, flush immediately with running water for at least 15 minutes. Seek medical help.

Consult the specific Material Safety Data Sheets (MSDS) for all safety data.

CASE HISTORY V-100 EPOXY GROUT

ASSEMBLY FOR PLATES SET WITH V-100 AT WHITE-SUNDSTRAND

Recently, the installation of set-up floor anchor plates was completed at White Sundstrand using V-100 grout between the plates and the plant floor. Sundstrand personnel commented that the material was exceptionally easy to use and that the installation had gone extremely well.

In the past, similar installations had been used using Escoweld epoxy grout. Sundstrand personnel commented that the Escoweld was much less pourable and tended to generate significantly more heat than the V-100.

There also was one other interesting observation. A large section of one plate had been cut away by mistake creating a void 5" x 10" x 2". This void was filled completely with the V-100 grout. A similar void had been filled with Escoweld material on a previous installation permitting the performance of the two materials under these conditions to be compared. The Escoweld had pulled away approximately 3/8" on the surface, down to a depth of about 3/8", creating a very distinct ledge around the interior of the void (due to thermal expansion and subsequent shrinkage during curing). The V-100 also exhibited pull-down, but to a significantly smaller degree (1/8" or less). This pull-down or shrinkage is to be expected where so large a volume of material is poured without provisions being made to carry away the heat generated by the chemical reaction.

Sundstrand personnel indicate that all future epoxy needs will be filled with V-100.

Also, if desired, the names of Sundstrand personnel involved directly with the project can be supplied as references regarding the performance of the V-100 product.

CASE HISTORY V-100 EPOXY GROUT

V-100 IN A QUENCHING STATION

Bethlehem Steel in Bethlehem, Pennsylvania has created a unique application for V-100 Epoxy Grout. Badly deteriorated railbeds inside a coke oven quenching station were in dire need of repair. In order to keep ovens in production, there were only periodic three hour spans in which to repair the beds. This ruled out most grouting materials since they would not have time to cure before cars full of hot coke would be unloaded from the oven and quenched with 170°F water. The water would overrun the cars and drain across the concrete pad on which the railbeds were located.

After Mr. Ron Ernharth, Unisorb's District Manager, learned of the application, he offered Unisorb V-100 Epoxy Grout as a solution. The short three-hour time span in which to prepare the bed underneath the rails and ties and pour the V-100 was not an inhibiting factor. Also, the durability of the V-100 would keep the bed in sound condition.

In order to prove the properties of V-100 Epoxy Grout, a test was run by pouring a 2' square pad near a rail tie location closest to the coke oven entrance into the quenching station. The epoxy cure was accelerated somewhat by the heat held within the floor. Since the water being poured over the coke was initially 170°F and the heat from the hot coke raised the temperature of the water, the floor of the quenching station remained quite warm. The epoxy, however, cured very well with its typical china-cup finish and has held up since installation.

With the bed reinstallation underway, every other tie was grouted to allow full support from the adjacent ties. This approach allowed full epoxy cure before having to carry the load of the full coke cars. Also, each tie was covered with plastic sheeting so that it could easily be removed from the V-100 for replacement or rail repair. To complete the installation of the railbeds in the quenching station, 100 55# V-100 Epoxy Grout kits were purchased.

CASE HISTORY V-100 EPOXY GROUT

BETHLEHEM STEEL - V-100 EPOXY GROUT APPLICATION

Bethlehem Steel Corporation of Chesterton, Indiana recently used V-100 Epoxy Grout to reinstall a 16,000 GPM Shaw Walker pump. The application involved the use of approximately 600 lbs. of grouting material (24 - 25 lb. kits).

The pump base which is 5' x 5' sq. x 2½' high (see accompanying drawing) had erroded over a short period of time and had been regrouted with Embeco 636 Grout. This was done several times with very little success. The Embeco 636 Grout lasted a maximum of only six months. Because of excessive moisture problems, Bethlehem Steel next decided to try an epoxy grout. All epoxy applications within Bethlehem Steel in the past were done with Ceilcoat Epoxy. This is a member of the group of epoxies that closely approximates concrete properties and consistency during placement.

Through the efforts of our District Manager, Jerry Jugovic, Bethlehem Engineering made the decision to purchase UNISORB V-100 Epoxy Grout for this application as a test case. An outside contractor was engaged to install forms with UNISORB supervision to retain the grout. Forms were then covered with a plastic liner and caulked to the existing pump base with butyl caulking compound. A Garlock compression packing was used to seal the center cavity also.

After allowing the caulking compound to set for 24 hours, eight 25 lb. kits of UNISORB V-100 Epoxy Grout were poured around the outside perimeter and permitted to cure for two hours. This action assured that the forms were sealed properly. Next, seventeen additional 25 lbs. kits were prepared and poured to raise the level of the grout to within ½" of the top of the barring plate.

Pour depths ranged from 5" to 10", considerably over the maximum recommended depth of 1½", as the foundation had been cut back to provide clearance for conventional grout. Because of the unusual depth of the pour, a considerable amount of heat was generated. However, the amount of heat generated was not sufficient to cause problems during the cure and the resulting job was accepted by Bethlehem as being excellent.

Since the initial pour, UNISORB V-100 Epoxy has received the full backing of Bethlehem Steel. Jerry has been put in touch with several construction companies which frequently perform maintenance within Bethlehem under the supervision of Bethlehem's Construction Services Department.

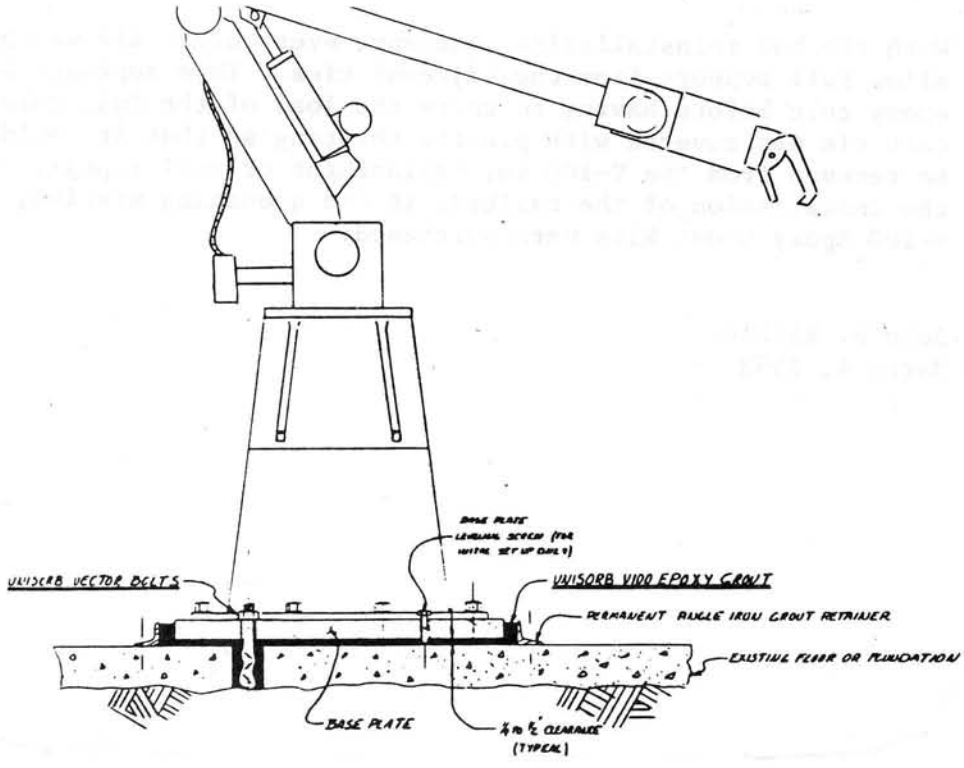
CASE HISTORY V-100 EPOXY GROUT

UNISORB ROBOT INSTALLATION SYSTEM

Unisorb V-100 Epoxy Grout and Vector Bolts were used recently to install a sophisticated robot at Smith Tool Company in Irvine, California. The installation was on a parts handling robot which loads oil field drilling bit forgings (weighing approximately 45-55 lbs.) into and out of an automated milling operation.

The sketch below shows the installation arrangement utilized. The robot base is bolted to a base plate which in turn is anchored to the floor and grouted in place. Following this installation scheme, the base plate which has been drilled and tapped to accept the robot base is moved into position and aligned on the foundation using the "tripod" leveling screws shown in the sketch. Vector Bolts are inserted into precast or drilled holes in the floor or foundation and the plate cast permanently into position with V-100 Epoxy Grout. Note that in this particular installation a permanent grout retainer and curb was formed using angle iron which was lagged to the floor and caulked for grout retention.

The use of Unisorb V-100 Epoxy Grout assures an extremely rigid connection between the machine and foundation and also permits a mimimum clearance (in this case ¼ to ½ inch) to be maintained between the base plate and the foundation. This installation technique can be readily applied to virtually any floor-mounted robot and offers a cost-effective approach to obtaining the high quality installation required by the new technology.



APPLICATION CHECK LIST

Unisorb V-1 Grout

Application Checklist

STORAGE:

If stored in a dry area, V-1 Grout has an unlimited shelf life.

PREPARATION:

All surfaces the grout will come in contact with must be clear of oil, grease, scale and other foreign matter. Plates and equipment should be placed to provide at least 1½" minimum grout thickness.

FORMING:

The forms must be carefully positioned and sealed (almost watertight) to allow rapid and continuous placement. The form must be several inches higher than the finished grout level to allow for at least a 1" head above the underside of the plate. On the pouring side allow at least a 3" horizontal clearance between the equipment and the form and a 6" or more head during the pour.

PRE-WETTING:

Saturate the foundation with water for 24 hours prior to grouting.

MIXING:

V-1 Grout can be mixed either by hand, a blending propeller type mixer in an electric drill, or any conventional concrete mixer. Add only 2/3 of the determined amount of water (see recommendations on the bag) into the mixing container and then add the grout. Mix until the grout is wet throughout, and add the additional amount of water until the proper consistency for rapid placement is obtained.

PLACEMENT:

Mix the initial batch more flowable so it can act as a lubricant for subsequent batches. Pour grout from one side if possible to prevent entrapping air. V-1 Grout may be vibrated during the pour without danger of segregation. Mix only as much as can be poured in thirty minutes.

FORM REMOVAL:

Do not remove the forms until the V-1 Grout has set up sufficiently (4 to 6 hours or more is preferable). Keep the grout surface moist for about 48 hours after placement. This can most easily be done by covering the surface with burlap that is sprinkled occasionally.

NOTE: For thick (2" or more) or deep pours, up to 50% by weight of clean washed pea gravel or crushed granite stone may be added. Refer to V-1 Grout data sheet or consult Unisorb's application engineer in your area for detailed instructions.