

PRODUCT BULLETIN HP-1



DESCRIPTION

RUSCOE PERMANENT SEALER 983 nitrile rubber highway joint sealant is a one part nitrile rubber material that readily extrudes over a wide temperature range and cures to produce a durable, tough, flexible rubber highway joint seal.

Due to its excellent adhesive characteristics and good extension/compression recovery, PERMANENT SEALER 983 gives outstanding performance in highway joints in which extreme movement occurs.

Contraction joints are generally sealed to restrict intrusion of incompressibles, water and deicing chemicals at the joint surface.

RUSCOE 983 Highway Joint Sealant features:

- Easy application—one part, ready to use as supplied; no mixing required; dispensed directly from container into joint with air powered pump.
- No priming—primer not required for bonding to concrete; surface must be clean.
- No tooling—self leveling eliminates need to tool sealant.

INFORMATION ON JOINT SEALANT

PERMANENT SEALER 983 HIGHWAY JOINT SEALANT

TYPE: Nitrile Rubber.

CURE: One part; solvent evaporation cure.

SPECIAL PROPERTIES: Easy to use; bonds to concrete without use of primer; no tooling; good recovery from extension/compression; resealable to itself.

PRIMARY USE: Sealing highway concrete contracting joints.

- Seals irregular surfaces—can be used to seal joints where spalls have occurred.
- Long life reliability—cured sealant remains rubbery from -60° to 300°F . (-51° to 149°C) without tearing, cracking or becoming brittle.
- Fast dry—tack free in ten minutes; road can be opened to traffic almost immediately after sealing in most applications.
- Elastic—meets the requirements of good joint design of ± 25 percent (50 percent total) movement. This extension/compression characteristic can be repeated many times and sealant will resume its original shape without splits or cracks.

- Good weatherability—nitrile rubber sealant is virtually unaffected by salts, chemicals, oils, grease, transmission fluids, gasoline, jet fuel, sunlight, rain, snow, ozone or temperature extremes.
- Performance requirements—exceeds Federal Specification TT-S-00230C Type I, Class A, except for 3.5.5, weight loss.
- Superior Adhesion—will adhere to concrete when dry or damp; no loss of adhesion.

USES

RUSCOE PERMANENT SEALER 983 nitrile rubber highway joint sealant is especially effective for sealing transverse and longitudinal contraction and expansion joints, center line and shoulder (edge) joints. These joints can be on a bridge or roadway. It can be used as the original sealant in new concrete construction or as a remedial or repair sealant in old construction.

TYPICAL PRODUCT PROPERTIES (As Supplied)

Type	Nitrile Rubber
Color	Gray and Black
Flow, Sag or Slump	Self Leveling
Cure time, at 77°F. (25°C), days	21-28
Full adhesion, days	21-28
Tack free time at 77°F. (25°C), minutes	10

RUSCOE 983 Highway Joint Sealant is uniquely effective as a joint sealant between a concrete roadway and an asphaltic concrete shoulder. It will bond to both materials to assure no intrusion of water into the joint.

PERMANENT SEALER 983 provides additional assurance in new construction during the initial curing of the concrete joints when the slabs create stress greater than the design dimensions or movement.

For use in maintenance applications, resealing old joints, PERMANENT SEALER 983 can be used to seal irregular shaped or spalled joints. Eliminates need for reshaping before sealing.

CPR projects require sawing of joints as well as cleaning out of all old sealing compounds.

Regardless of type of application for sealant, the joints should be cleaned and free of old sealant. Some dampness will not deter the performance of the sealant.

LIMITATIONS

RUSCOE'S PERMANENT SEALER 983 nitrile rubber highway joint sealant can be used for constant water immersion; however, the sealant should be allowed to cure the full 28 days prior to immersion.

RUSCOE'S 983 should not be used on vertical sealing applications. The self leveling product would flow down. For vertical curb sealing on bridge decks, use PERMANENT SEALER CURB SEALANT 965.

The sealant bead should not be above the road surface to minimize traffic noise and abrasion from snow removal equipment.

WHERE TO USE IT

PERMANENT SEALER 983 nitrile highway joint sealant is ideal for use in joints that experience high degrees of movement such as expansion and contraction joints in highways, bridges, parking deck structures and airports. Also used for longitudinal and shoulder joints whether the shoulder is concrete or asphalt.

RUSCOE 983 works exceptionally well in areas of occasional or continuous water immersion conditions.

PERMANENT SEALER 983 exceeds requirements for sealing joints that are exposed to jet fuel, gasoline, chemicals, grease, oils or transmission fluids.

RUSCOE'S 983 nitrile highway joint sealant never requires a primer, whether it will be totally immersed in water or exposed to fuels or chemicals. It is resealable to itself.

The RUSCOE 983 nitrile joint sealant is a self leveling material that Does Not require tooling. Since it is self leveling, use in vertical curb joint should be avoided.

RUSCOE PERMANENT SEALER CURB SEALANT 965 should be used in any vertical installation. CURB SEALANT 965 is a non-sag formulation of nitrile sealant. See HP-2 for further information.

TABLE I: RECOMMENDED BACKER ROD INSTALLATION

JOINT WIDTH	1/4"	3/8"	1/2"	3/4"	1"
Recessed Below Surface	1/4"	1/4"	1/4"	1/4"	1/2"
Sealant Thickness	1/4"	1/4"	1/4"	3/8"	1/2"
Backer Rod Diameter	3/8"	1/2"	5/8"	7/8"	1-1/4"
Total Joint Depth	7/8-1"	1-1-1/8"	1-1/8-1-1/4"	1-1/2-1-5/8"	2-1/4-2-3/8"

HOW TO USE IT

Being a self leveling sealant, RUSCOE'S 983 Highway Joint Sealant never needs "tooling." The sealant will seek its own level and flow even into areas which may be spalled or have irregular shapes. The solvent evaporation cure takes effect almost immediately by "skinning" over within 10 minutes to a tack free substance.

PERMANENT SEALER 983 is an adhesive formulated sealant and adheres to virtually any substrate with which it comes into contact, with the exception of expanded polyethylene foam backer rod. This backer should be used in all sealant work, whether new construction or repair. The backer rod should be a minimum of 1/8" larger than the width of the joint.

The PERMANENT SEALER 983 Highway Joint Sealant, the proper backer rod (expanded closed cell polyethylene foam) and proper installation are all part of a successful joint system.

INSTALLATION

1. Clean all joints of contaminants and debris to the depth at which the sealant and backer rod are to be installed, by grinding, sawing, water or sandblasting, mechanical abrading or a combination of these methods. This will provide a sound, clean surface for sealant application.
2. Blow out dust and loose particles from joints with oil free compressed air. Surfaces should be clean and dust free.
3. Install proper size expanded closed cell polyethylene foam backer rod in the joint. This material permits the application of a thin bead and acts as a bond breaker allowing the RUSCOE 983 nitrile joint sealant to stretch freely with the joint movement.

4. Apply PERMANENT SEALER 983 in a continuous operation to properly fill and seal the joint to within 1/16" of the road surface.
5. No tooling is required. The self leveling allows product to flow and upon cure will produce the desired concave configuration.
6. The RUSCOE 983 nitrile joint sealant will begin to "skin" over as soon as it is applied. Traffic can resume within 10 minutes.

STORAGE & SHELF LIFE

When stored in original unopened container at or below 90°F. (32°C), RUSCOE PERMANENT SEALER 983 nitrile highway joint sealant has a shelf life of one year from date of shipment. Keep containers tightly closed.

**TABLE II:
ESTIMATING REQUIREMENTS**

Joint Width, Inches	Joint Depth, Inches	Linear Feet/Gallon
1/4	1/4	308
3/8	1/4	205
1/2	1/4	154
5/8	5/16	98.7
3/4	3/8	68.4
7/8	7/16	50.3
1	1/2	38.5
1-1/8	9/16	30.4
1-1/4	5/8	24.6
1-3/8	11/16	20.4
1-3/4	7/8	12.6
1-7/8	15/16	11.0
2	1	9.6

PACKAGING

RUSCOE PERMANENT SEALER 983 nitrile highway joint sealant is supplied in 29 fl. oz. (850 ml) cartridges, 5-gallon pails (18.9 Liters), and 50-gallon drums (189 Liters). All weights are net.

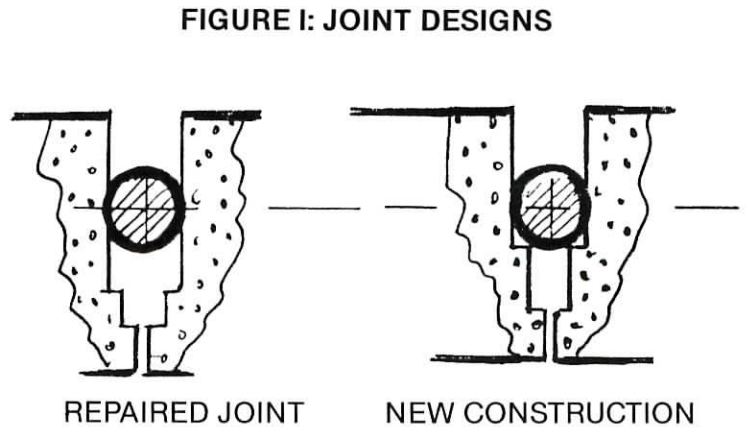
CAUTION

Avoid prolonged skin contact with RUSCOE 983 Highway Joint Sealant. May cause skin irritation.



NOTICE TO CUSTOMER

The information and data contained herein are based on information we believe reliable. You should thoroughly test on any application and independently conclude satisfactory perform-



- a. Joint wide enough to accommodate movement.
- b. Repaired joint sawed deep enough for rod/sealant placement and space for pumping old compounds. Not needed in new construction.
- c. Proper backer rod placement.
- d. Sealant properly installed.

**WARNING: FLAMMABLE
HARMFUL OR FATAL IF
INHALED OR SWALLOWED
DO NOT USE NEAR FIRE,
FLAME OR SOURCE OF
IGNITION.**

Avoid prolonged breathing of vapor or repeated contact with skin. Use with adequate ventilation. If swallowed, do not induce vomiting. Call physician immediately. Contains Petroleum Distillates and Ketones.

**KEEP OUT OF THE REACH
OF CHILDREN**

mance before commercialization. Suggestions of uses should not be taken as inducements to infringe any particular patent.



TECHNICAL DATA SHEET

W.J. RUSCOE COMPANY

P.O. BOX 3858 • AKRON, OH 44314 485 KENMORE BLVD. • AKRON, OH 44301
PHONE 216/253-8148

W.J. RUSCOE PERMANENT SEALER 983 SELF-LEVELING JOINT SEALANT PHYSICAL PROPERTIES OF WET MATERIALS

<u>PROPERTY</u>	<u>MEASURING STANDARD AND CONDITIONS</u>	<u>RESULTS</u>
Weight	ASTM E201	8.6 lbs./Gallon ±0.3
Non Volatile (Total Solids by Weight)	ASTM D1353 18 Hrs. @ 200°F (93°C)	60%-65%
Viscosity	Brookfield RVF #7 Spindle @ 4 RPM 77°F (25°C) 50% RH	600,000 ± 50,000 cps
Drying Time	ASTM D1640 40 Mil (0.040") 77°C (25°C) 50% RH	Dry to Touch: 10 Minutes Dry to Complete: 21-30 Days
Flash Point of Solvent	ASTM D1310	60°F (15.5C)

PERFORMANCE OF PROPERTIES OF CURED SEALANT

Hardness (Indentation)	ASTM D2240 Rex Type "A" Model 1700 77°F (25°C) 50% RH	25-35
Tensile Strength	ASTM D412 Die "C" Pulled @ 20 IPM	125 psi (Minimum) 0.3510 kgf/mm ²) (Minimum)
Elongation	ASTM D412 Die "C" Pulled @ 20 IPM	1000 (Minimum)
Adhesion (Peel Strength)	ASTM D903 Canvas to Concrete	30 lbs min, per inch width (0.268 kgf/mm) (Minimum)
Weathering Resistance	ASTM D822 Weatherometer 350 Hrs Cured 7 days @ 77°F (25°C) 50% RH	Slight Chalking
Salt Spray Resistance	ASTM B117 28 days @ 100°F (38°C) 5% NaCl Die "C", 20 IPM	Tensile 125 (Minimum) psi (0.3510 kgf/mm ²) Elongation 1000% (Minimum)
Adhesion & Cohesion Under Cyclic Movement	100 ± 50 ASTM C-719-86	Passes
Chemical Resistance	ASTM D471	No effect by use of deicing chemical, gasoline, hydraulic brake fluid; motor oil, calcium chloride (5%), or jet fuel.