



PRODUCT DATA SHEET

Description

KEMA Module Sealants are safe, easy-to-use, long lasting, corrosion-resistant, barrier coatings.

They are packaged in roll form and can be either wrapped onto the pipe, fitting and assembly or cut into strips for flat application to a clean substrate.

The aggressive bond of the adhesive is a result of the proprietary macro-polyisobutylene formulation that is further improved with the addition of special raw material enhancements.

The finished elastomeric adhesive compound exhibits very high tensile strength and a strong resistance to both cold flow and shear.

All Module Sealants are UV-resistant and well-suited for both above and below grade installations.

They are immune to the attack of anaerobic bacteria commonly found in soils worldwide and do not breakdown even after lengthy immersion.

KEMA Module Sealants offer the user a barrier coating that is resistant to a wide range of acid and alkali solutions as well as gases.

They are offered as either sealants or tapes in a variety of roll lengths, widths and thicknesses. The tapes are completed with a polyethylene (PE) film bonded to one side. The PE film is currently available in 5 mils.(127ums) or 12 mils.(304.8ums) film thicknesses.

KEMA Module Sealants are at work in the ice and snow of the Canadian North; the dry deserts of the Middle East and in the moist, humid coastal regions of Africa.

Characteristics

Colour:	Black
V.O.C. Content:	0 (Zero)
Viscosity:	99% solid.
Flash Point (min.):	204°C. (400°F.)
Specific Gravity:	1.1 @ 25°C.(77°F.)
Shelf Life:	36 months, unopened. Store indoors at 5°C-38°C./ 41°F.-100°F.
Interleaf:	Comprised of treated paper that is 1/2in./12.7mm. wider than the tape wrap it protects. Biodegradable.

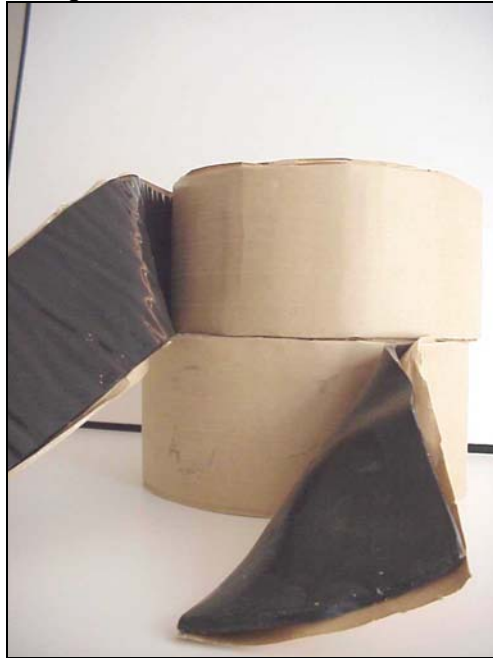
Primer: The use of a pre-approved liquid primer is recommended on all *bare* metal surfaces only. Contact KEMA Coatings Limited.

Some Recommended Uses

Use as protection (new or maintenance coating) on prepared and primed steel, iron, aluminium, concrete and asphalt substrates. For example:

- Thermite Welds on Pipelines & Tanks
- Pipeline Girth Welds
- Stainless Steel Band Weld Coating
- Pipeline Rehab. Coating Transitions
- General Pipeline Coating Repair
- Tie-Ins
- New Pipeline Coating
- Temporary Highway Island Transitions
- Asphalt/Concrete Crack/Gap Repairs
- Adhesive Strips for Plastic Film Bonding
- Insulated Spacers

Fig.1. Module Sealants in Roll Form



Standard Sizes and Part Numbers

<u>Item</u>	<u>Description</u>	<u>Part No.</u>
250mils./ 6.4mm. thick sealant		
KEMA 250	4in./10cm.wide	752GHA760
KEMA 250	6in./15cm. wide	752GHE760
KEMA 250-12	4in./10cm. wide c/w 12mils./304.8ums PE film on 1 side.	752GHA1760
KEMA 250-12	6in./15cm. wide c/w 12mils./304.8ums PE film on 1 side.	752GHE1760
60mils/1.5mm. thick sealant		
KEMA Series 60	4in./10cm. wide	752GGA0760
KEMA Series 60	6in./15cm. wide	752GGF0760
KEMA Series 60	4in./10cm. wide c/w 5mils./127ums PE film 1 side.	752GGA1760
KEMA Series 60	6in./15cm. wide c/w 5mils./127ums PE film 1 side.	752GGF1760

Physical Properties

Dielectric Breakdown Voltage:	>20,000V. Wet ASTM D149-97a (2004)	>10,000V. Dry
Peel Adhesion:	CSA Z245.21 M98 Clause 12.4	22.7 N.
Cathodic Disbondment:	CSA Z245.21 M98 Clause 12.3	(0). Zero.
Impact Resistance:	CSA Z245.20 M98 Clause 12.12	7.75J.
Hardness: (Shore A)		30 maximum.
Adhesion to Primed Steel:		>1975 psi
Flexibility:		Excellent
Pliability:		Very Good

Chemical Resistance

1. Aqueous inorganic salts
2. Mineral acids including hydrofluoric
3. Sulfuric, phosphoric and mixed acids
4. Alkalis

Service Temperature Ranges

ASTM D1000

<i>Above Grade Service -</i>	-29 ⁰ C.- 121 ⁰ C. -20 ⁰ F.- 249 ⁰ F.
<i>Below Grade Service -</i>	-29 ⁰ C.- 90 ⁰ C. -20 ⁰ F.- 194 ⁰ F.
<i>Application -</i>	- 7 ⁰ C.- 49 ⁰ C. -19 ⁰ F.- 120 ⁰ F.

Compatibility

Both the KEMA 250-12 w/PE film and the KEMA Series 60 w/PE film can be used as topcoats over the KEMA 250 and the KEMA Series 60 sealants. Can also be used on all prepared metal surfaces. Aggressively bonds to itself, coal tar, asphalt, urethane, polyethylene, polypropylene, tapes, fusion bond epoxy and liquid epoxy coated surfaces. Please contact us if your existing coating is not mentioned here.

Table 1. Packaging

SIZE	4"	4"w/PE	6"	6"w/PE
ITEM				
250	4 Rolls 4x20ft. 1 Carton		4 Rolls 4x20ft. 1 Carton	
250-12		4 Rolls 4x20ft. 1 Carton		4 Rolls 4x20ft. 1 Carton
Series 60	6 Rolls 6x50ft. 1 Carton	6 Rolls 6x50ft. 1 Carton	4 Rolls 4x50ft. 1 Carton	4 Rolls 4x50ft. 1 Carton

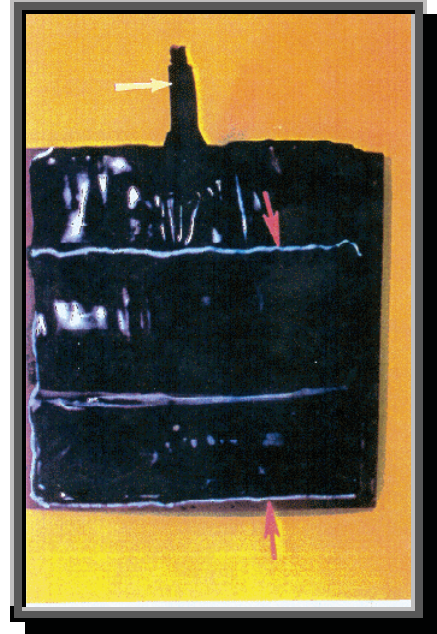
Cold Flow Test Protocol and Results

Cold flow and adhesion tests of KEMA Module Sealant coatings were completed in 1994. Testing was conducted in the following manner:

1. A soil box was constructed.
2. The soil box cycled between wet and dry during a 28 day test period.
3. The soil box operated at two temperatures - 40⁰C./104⁰F. for the first 14 days then at 55⁰C./131⁰F. for the remaining 14 days.
4. Insulated copper wire leads were thermite welded to carbon steel test panels in accordance with industry practice.
5. Each welded panel was cleaned and primed then allowed to dry.
6. Pre-cut strips of KEMA 250-12 Module Sealant were applied to each primed and cured panel with one strip overlapping the next until the panels were completely coated.
7. White indelible ink markers were used to highlight each overlap of the Module Sealant strips. (See Figure 2.)
8. Completed panels were buried in soil box.
9. Soil boxes were top-weighted to simulate real-time loads experienced on buried pipelines.
10. 28 days later the test panels were removed, allowed to dry and the Module Sealant overlap seams were observed for movement. (See Figure 3.)

- Results:**
- (1) No material cold flow was observed.
 - (2) No loss of adhesion was observed.
 - (3) No cracks or "tenting" was observed.

Figure 2. Pre-Test



White indelible ink lines are used to define material starting positions.

Figure 3. Post-Test



White ink marks remain in place proving that material maintains its original position after 28 days of destructive testing.

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