



DOWSIL™ FIRESTOP 700 Sealant

Fire-rated one-part silicone sealant for interior and exterior linear joints and penetration seals

Features & Benefits

- One-part low modulus sealant
- Cures at room temperature when exposed to moisture in air
- Neutral cure, halogen-free
- Easy to apply: non-slump
- Excellent unprimed adhesion to most porous and non-porous construction substrates
- Excellent weathering characteristics, including resistance to ozone, UV radiation and temperature extremes
- Long service life
- Conforms to ISO 11600-F&G-25LM
- Joint movement capability $\pm 50\%$ (ISO 9047)
- Tack-free in 1.5 hours
- Fire reaction tested and classified B,s2,d0 according to EN13501-1
- Fire resistance tested for linear joints according to EN1366-4 and BS 476 Part 22
- Fire resistance tested for penetration seals according to BS 476-22
- A fire resistance rating in integrity (E) and insulation (EI) of up to 240 minutes–4 hours can be achieved depending on the joint configuration
- CE marked as a fire resistant sealant according to EAD 350141-00-1106 (ETAG 026)
- Civil Defense Approval for UAE
- Approved for railway standard EN 45545-2, R22/R23/R24-HL2

Applications

- The sealing of vertical and horizontal linear expansion joints and pipe and cable penetrations in fire rated walls

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Test	Property	Unit	Result
As Supplied			
ASTM ¹ D2202	Slump	mm	Max. 1
CTM ² 0097B	Density	g/cm ³	1.48
CTM 98B	Working Time	minutes	15

1. ASTM: American Society for Testing and Materials.
2. CTM: corporate test method, copies of CTM's are available on request.

Typical Properties (Cont.)

Test	Property	Unit	Result
ASTM C679	Tack-free Time (23°C, 50% R.H.)	hours	1.5
CTM 663A	Cure Rate (23°C, 50% R.H.)	mm	After 1 day: 2
ISO ³ 8339	Tensile Strength	MPa	0.57
ISO 8339	Elongation at Break	%	345
ISO 8339	Modulus at 100%	MPa	0.39
ISO 9047	Joint Movement Capability	%	±50
ASTM D2240	Hardness, Durometer	Shore A	26
	Application Temperature	°C	+5 to +40
	Service Temperature	°C	-50 to +180
EN ⁴ 13501-1	Fire Reaction Rating	NA	Class B, s2, d0
EN13501-2	Fire Resistance Rating	min	Up to 4 hours integrity and insulation depending on joint detailing
Eurofins	VOC	NA	Indoor Air Comfort Gold
	Shelf Life	months	12

3. ISO: International Standardization Organization.
4. EN: European Norm

Description

DOWSIL™ FIRESTOP 700 Sealant is a low modulus, one-part, neutral curing, fire-rated silicone sealant. It has excellent unprimed adhesion to a range of common construction substrates including stone, steel, masonry, brick, wood, etc. It is ideal for weather-sealing of building facades and expansion joints where a fire rating is required. It is also suitable for use in small penetration sealing systems where pipes and cables pass through fire rated wall structures.

Technical Specifications and Standards

DOWSIL™ FIRESTOP 700 Sealant has been tested in linear expansion joint configurations according to EN1366-4 and to BS 476 Part 22/1987. It also has been tested in pipe and cable penetration systems according to BS 476 Part 22/1987.

DOWSIL™ FIRESTOP 700 Sealant is CE marked according to EAD350141-00-1106 (ETAG 026).

DOWSIL™ FIRESTOP 700 reaches a Euroclass B, s2,d0 according to EN 13501-1 (Reaction to fire).

DOWSIL™ FIRESTOP 700 has Civil Defense Approval for UAE.

Technical Specifications and Standards (Cont.)

It meets the requirements of SNJF category 1 sealants.



It meets the requirements of DIN 18545, T2 and Class E of DIN 18540, T2, ISO 11600-F&G-25LM.

Regulation or protocol	Conclusion	Version of regulation or protocol
French VOC regulations	A+	Regulation of March and May 2011 (DEVL1101903D and DEVL1104875A)
French CMR components	Pass	Regulation of April and May 2009 (DEVP0908633A and DEVP0910046A)
AgBB/ABG	Pass	Anforderungen an bauliche Anlagen bezoglich des Gesundheitsschutzes (ABG), Entwurf 31.08.2017/August 2018 (AgBB)
Belgian Regulation	Pass	Royal decree of May 2014 (C-2014/24239)
EMICODE	EC 1 Plus	April 2019
Indoor Air Comfort	Pass	Indoor Air Comfort 6.0 of February 2017
Indoor Air Comfort GOLD	Pass	Indoor Air Comfort GOLD 6.0 of February 2017
BREEAM International	Compliant	BREEAM International New Construction v2.0 (2016)
BREEAM Norway	Pass	BREEAM-NOR New Construction v1.2 (2019)
CDPH	Pass	
Byggarubedomningen	Accepted	

Fire Ratings

Fire test data is available illustrating that DOWSIL™ FIRESTOP 700 Sealant can achieve up to a 4 hour fire resistance rating (integrity and insulation) at specified joint and penetration configurations.

The test data provides a good indication of the expected performance of the sealant in fire situations. Users should satisfy themselves that specific applications for which DOWSIL™ FIRESTOP 700 Sealant is proposed are suitable and testing of a particular system may be required.

To achieve any specific fire rating, all substrates being used in the system must have at least an equivalent fire rating.

Joint Design

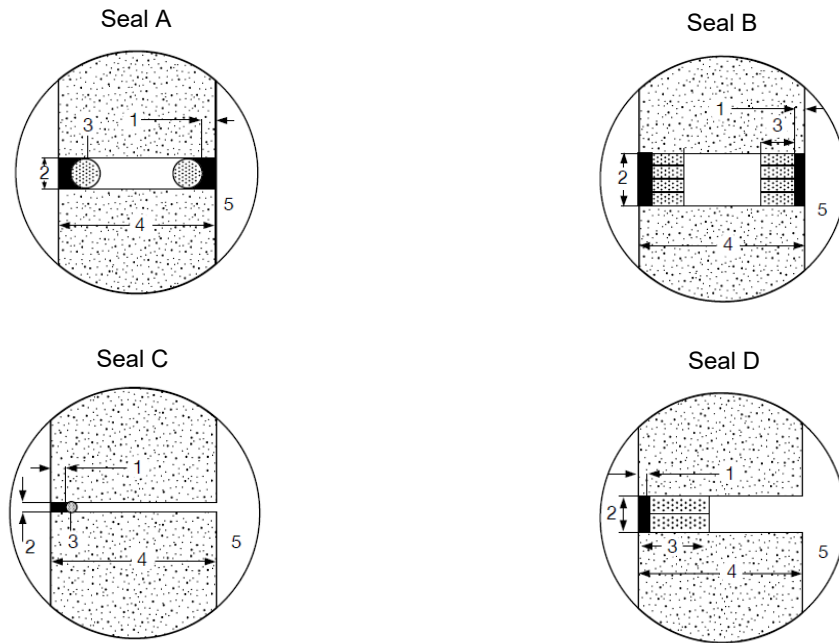


Figure 1: Typical linear joint system design for DOWSIL™ FIRESTOP 700 Sealant.

Legend

1. Joint depth
2. Joint width
3. Backing material depth-diameter (mineral wool or backer rod)
4. Supporting wall construction thickness
5. Fire side (FS) or non-fire side (NFS)

When designing joints using DOWSIL™ FIRESTOP 700 Sealant, the minimum width should be 6 mm.

Expansion joint types that have been tested are shown in Figure 1. The type of joint selected will depend on fire requirements for the project and aesthetics of the building. Attainment of specific fire ratings is dependent on the joint configuration. Detailed information is given in Table 1. Interpolation within the tested range between the maximum and the minimum nominal joint width is permitted provided the overall seal depth including the backing material is equal or higher. Further rules defining the extended application process of the test results are available.

Please consult your local Dow representative for assistance with specific design requirements.

Table 1: Fire resistance test results for vertical linear joints in walls. Joint type A, B, C or D according to Figure 1.

Width	Depth	Wall Thickness	Backer	Joint Type	Standard	E Fire Class	EI Fire Class	Sealant Position		
6 mm	x	10 mm	230 mm	25 mm	CF	D	BS476-22	4 hours	4 hours	NFS
10 mm	x	10 mm	230 mm		PE	C	BS476-22	2 hours	2 hours	NFS
10 mm	x	10 mm	230 mm	25 mm	MW	D	BS476-22	2 hours	2 hours	NFS
10 mm	x	10 mm	230 mm		PE	A	BS476-22	3 hours	4 hours	FS + NFS
10 mm	x	10 mm	230 mm	25 mm	MW	B	BS476-22	4 hours	4 hours	FS + NFS
10 mm	x	15 mm	230 mm	25 mm	MW	D	BS476-22	4 hours	4 hours	NFS
10 mm	x	20 mm	230 mm	25 mm	CF	D	BS476-22	4 hours	4 hours	NFS
15 mm	x	10 mm	230 mm	25 mm	MW	D	BS476-22	4 hours	4 hours	NFS
15 mm	x	15 mm	230 mm	25 mm	CF	D	BS476-22	4 hours	4 hours	NFS
15 mm	x	15 mm	230 mm	25 mm	CF	B	BS476-22	4 hours	4 hours	FS + NFS
15 mm	x	20 mm	230 mm	25 mm	CF	D	BS476-22	4 hours	4 hours	NFS
20 mm	x	10 mm	230 mm	25 mm	MW	D	BS476-22	4 hours	4 hours	NFS
20 mm	x	15 mm	230 mm	25 mm	CF	D	BS476-22	4 hours	4 hours	NFS
20 mm	x	20 mm	230 mm		PE	C	BS476-22	4 hours	3 hours	NFS
20 mm	x	20 mm	230 mm	25 mm	CF	D	BS476-22	4 hours	4 hours	NFS
20 mm	x	20 mm	230 mm		PE	C	BS476-22	4 hours	3 hours	FS + NFS
25 mm	x	15 mm	230 mm	25 mm	CF	D	BS476-22	4 hours	4 hours	NFS
25 mm	x	20 mm	230 mm	25 mm	CF	D	BS476-22	4 hours	4 hours	NFS
10 mm	x	10 mm	230 mm		PE	C	BS476-22	4 hours	3 hours	FS
10 mm	x	10 mm	230 mm	25 mm	MW	D	BS476-22	4 hours	4 hours	FS
25 mm	x	20 mm	230 mm		PE	C	BS476-22	2 hours	1 hours	FS
50 mm	x	25 mm	150 mm	50 mm	MW	D	BS476-22	2 hours	2 hours	NFS
40 mm	x	20 mm	150 mm	25 mm	MW	D	BS476-22	2 hours	1 hours	NFS
10 mm	x	10 mm	150 mm		PU/PE	A	EN1366-4	E 240	EI 240	FS+NFS
10 mm	x	10 mm	150 mm	60 mm	MW	B	EN1366-4	E 240	EI 240	FS+NFS
30 mm	x	10 mm	150 mm	60 mm	MW	B	EN1366-4	E 240	EI 240	FS+NFS
30 mm	x	10 mm	150 mm		PU/PE	A	EN1366-4	E 240	EI 240	FS+NFS
30 mm	x	15 mm	150 mm	60 mm	MW	D	EN1366-4	E 240	EI 240	NFS

Table 2: Fire rating test results for horizontal linear joints in walls. Joint Type A, B, C or D according to Figure 1.

Width	Depth	Wall Thickness	Backer	Joint Type	Standard	E Fire Class	EI Fire Class	Sealant Position	
10 mm	x	10 mm	150 mm	PU/PE	A	EN1366-4	E 240	EI 240	FS+NFS
30 mm	x	10 mm	150 mm	PU/PE	A	EN1366-4	E 240	EI 240	FS+NFS
10 mm	x	10 mm	150 mm	60 mm MW	B	EN1366-4	E 240	EI 240	FS+NFS
30 mm	x	10 mm	150 mm	60 mm MW	B	EN1366-4	E 240	EI 240	FS+NFS
30 mm	x	15 mm	150 mm	60 mm MW	D	EN1366-4	E 240	EI 240	NFS

Penetration Design

DOWSIL™ FIRESTOP 700 Sealant has been developed for use in small penetration seal applications where it should be used in conjunction with specified backing material. Typical penetration seals are illustrated in Figure 2. The rectangular or round openings can be left blank, or can be filled with one or multiple penetrants. The penetrants are typically centered in the opening as illustrated in Figure 3. Backing material (mineral wool) can also be present.

For larger penetrations, DOWSIL™ 3-6548 RTV Silicone Foam should be used. Please consult the relevant datasheet for further information.

Attainment of specific fire ratings is dependent on the joint configuration. Detailed information is given in Table 3. Please consult your local Dow representative for assistance with specific design requirements.

Table 3: Fire rating test results for small penetrations in walls. Joint type A, B or C according to Figure 2.

Penetration size	Wall Thickness	Services	Penetration design	Standard	Integrity E	Insulation I
150 mm x 150 mm	230 mm	Blank seal (A)	10 mm FS 700 + 75 mm mineral wool	BS476-22	4 hours	1 hour
150 mm x 150 mm	230 mm	Blank seal (A)	20 mm FS 700 + 50 mm mineral wool	BS476-22	4 hours	1 hour
150 mm x 150 mm	230 mm	100 mm Ø steel pipe (B)	10 mm FS 700 + 75 mm mineral wool	BS476-22	4 hours	1 hour
150 mm x 150 mm	230 mm	25 mm Ø steel pipe (B)	10 mm FS 700 + 75 mm mineral wool	BS476-22	4 hours	3 hours
150 mm x 150 mm	230 mm	25 mm Ø cable (B)	20 mm FS 700 + 25 mm mineral wool	BS476-22	2 hours	1 hour
150 mm x 150 mm	230 mm	25 mm Ø steel pipe (B)	20 mm FS 700 + 75 mm mineral wool	BS476-22	4 hours	4 hours
150 mm x 150 mm	230 mm	1x25 mm cable, 4x12.5 mm (C)	10 mm FS 700 + 75 mm mineral wool	BS476-22	4 hours	1 hour
150 mm x 150 mm	230 mm	1x25 mm cable, 4x12.5 mm (C)	20 mm FS 700 + 75 mm mineral wool	BS476-22	4 hours	4 hours

Table 3: Fire rating test results for small penetrations in walls. Joint type A, B or C according to Figure 2. (Cont.)

Penetration size			Wall Thickness	Services	Penetration design	Standard	Integrity E	Insulation I
50 mm	Ø	230 mm		Blank seal (A)	20 mm FS 700 + 25 mm mineral wool	BS476-22	4 hours	4 hours
50 mm	Ø	230 mm		25 mm cable (B)	20 mm FS 700 + 25 mm mineral wool	BS476-22	4 hours	4 hours
15 mm	Ø	230 mm		1 x 13 A cable (A)	15 mm x 6 mm FS 700	BS476-22	2 hours	2 hours
20 mm	Ø	230 mm		1 x 13A Flex (A)	20 mm x 6 mm FS 700	BS476-22	2 hours	2 hours
25 mm	Ø	230 mm		2 x 13A cables (C)	25 mm x 6 mm FS 700	BS476-22	2 hours	2 hours
30 mm	Ø	230 mm		2 x 30A cables (C)	30 mm x 6 mm FS 700	BS476-22	2 hours	2 hours
50 mm	Ø	230 mm		5 x 30A cables (C)	50 mm x 6 mm FS 700	BS476-22	2 hours	2 hours

Legend

FS: Fireside of test furnace.

NFS: Non-fireside of test furnace.

CF: Ceramic fiber, aluminum silicate blanket of 128 kg/m³ nominal density.

MW: Mineral wool of 45-100-180 kg/m³ nominal density.

PE: Closed-cell polyethylene foam of 35 kg/m³ nominal density.

Ø: Outside diameter of opening.

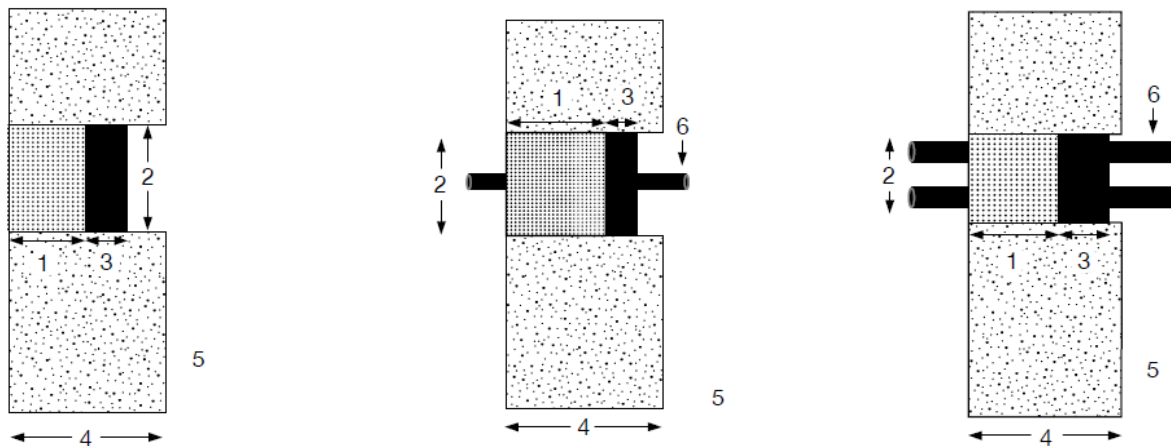


Figure 2: Typical service penetration in a wall. From left to right: Blank seal (A), Single penetrant (B), Multiple penetrants (C)

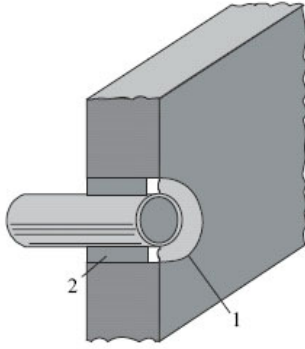


Figure 3: Illustration of centered penetration in a wall.

Legend

1. DOWSIL™ FIRESTOP 700 Sealant
2. Backing material (MW)

Substrate Preparation

Cleaning

Ensure that all surfaces are clean, dry, sound and free from frost. Clean all joints of release agents, water repellents, laitance, dust, dirt, old sealants and other contaminants which could impair adhesion. Metallic substrates should be degreased, grit blasted/washed to remove any contaminants that could impair adhesion. Suitable solvents like isopropyl alcohol, acetone or DOWSIL™ R-40 Universal Cleaner can be used to clean the metallic substrates¹.

For further advice on cleaning specific substrates please contact technical services department.

¹When using any solvent, always provide adequate ventilation. Avoid heat, sparks and open flames. Observe and follow all precautions listed on solvent container label or Product Safety Data Sheet as recommended by the solvent manufacturer and applicable federal, state, and local regulations.

Adhesion

DOWSIL™ FIRESTOP 700 Sealant has excellent adhesion to most common construction substrates.

If in doubt, or if unusual substrates are involved, please contact the technical services department.

Cement or concrete should be primed with DOWSIL™ P Primer for optimum adhesion.

Dow will carry out specific adhesion and compatibility testing on individual substrates to ensure that correct recommendations can be made. If there is any doubt concerning any aspect of the use of DOWSIL™ FIRESTOP 700 Sealant, users are strongly advised to contact technical services department.

Substrate Preparation (Cont.)

Back-up Materials

Backer materials have been evaluated in various joint designs, such as closed-cell polyethylene and polyurethane foam backer rod, ceramic fiber and mineral wool. In penetration sealing applications, mineral wool has been evaluated. The mineral wool has a density of 45 kg/m³ and is lightly compressed to 10%. The PU/PE backer rods are closed cell and have a density of 35 kg/m³. The supporting construction is a standard rigid aerated concrete wall (thickness: 150 mm, density: 550 kg/m³) Depending on the fire rating required and the joint/penetration design, the most suitable system can be selected by referring to the rating tables (see Table 1–3).

Masking

Areas adjacent to the joints should be masked with tape to prevent contamination of the substrates and to ensure a neat sealant line. Masking tape should be removed immediately after tooling.

Application

DOWSIL™ FIRESTOP 700 Sealant should not be applied to surfaces that are below 5°C (41°F) as it is impossible to guarantee a dry, frost-free surface at these temperatures. Table 4 provides an estimate of material consumption as a function of joint dimensions.

Table 4: Estimating sealant requirements.

Linear meters per 310 ml cartridge						
Width		6 mm	10 mm	15 mm	20 mm	25 mm
Depth	10 mm	5.2	3.1	2.1	1.0	
	15 mm		2.1	1.4	1.0	0.8
	20 mm		1.6	1.0	0.8	0.6

The joint should be tooled within 15 minutes of application to ensure good contact between the sealant and the substrate. Tooling of the sealant also gives a smooth, professional finish (Figures 4–5).

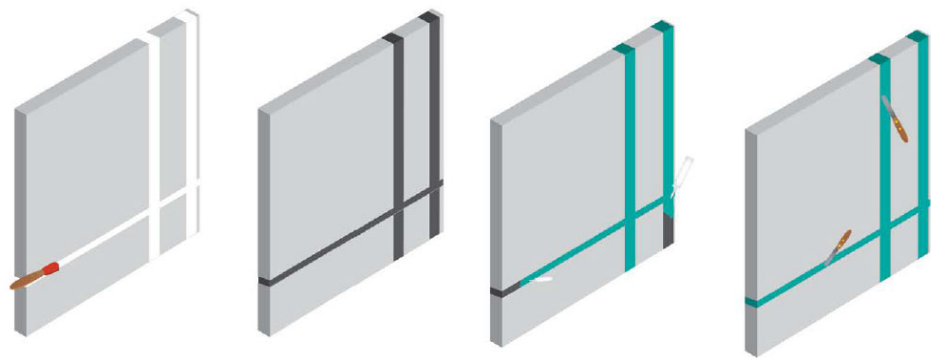


Figure 4: Typical tooling of linear joints for DOWSIL™ FIRESTOP 700 Sealant

Substrate Preparation (Cont.)

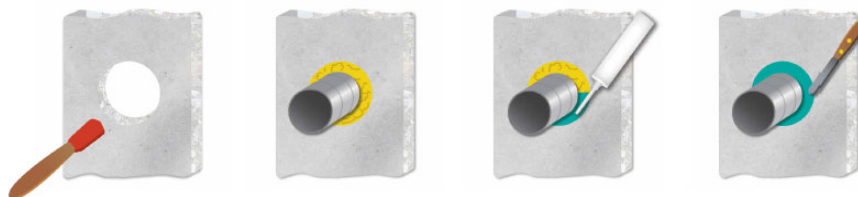


Figure 5: Typical tooling of penetration seals for DOWSIL™ FIRESTOP 700 Sealant.

Clean-up

Excess sealant should be cleaned off tools and non-porous surfaces whilst in an uncured state using a suitable solvent, such as DOWSIL™ R-40 Universal Cleaner. Sealant adhering to porous surfaces should be left until just cured and then removed by abrasion or other mechanical means.

Typical Cure

Cure rate at 23°C and 50% RH:

- Tack-free time: < 1.5 hour
- Cure 2 mm depth: 1 day

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life and Storage

When stored in cool, dry conditions below 30°C in the original unopened containers DOWSIL™ FIRESTOP 700 Sealant has a usable life of 12 months from the date of production. Refer to product packaging for “Use By” date.

Packaging Information

DOWSIL™ FIRESTOP 700 Sealant is available in 310 ml cartridges packed in boxes of 12 and 20 liter pails.

Limitations

DOWSIL™ FIRESTOP 700 Sealant should not be used against substrates that bleed oils, plasticizers or solvent. Consult the technical service department for further advice in specific applications.

DOWSIL™ FIRESTOP 700 Sealant is not intended for use as the structural seal in any application.

DOWSIL™ FIRESTOP 700 Sealant is not intended to be commercialized in the United States.

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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