

# Poliuretano® Spray

## S-OC-008

# Isocianato

## H

### DESCRIPTION

A polyurethane system made up of two components – a polyol mixture and an isocyanate – that is sprayed in-situ to form low-density open-cell foams for thermal and sound insulation purposes.

**Poliuretano Spray S-OC-008** has been formulated using **water as the only foaming agent and is free of ethoxylated nonylphenol.**



### COMPONENTS

**COMPONENT A:** **Poliuretano Spray S-OC-008**  
A polyol mixture that contains catalysts and flame-retardants.

**COMPONENT B:** **ISOCIANATO H**  
Polymeric methylene diphenyl diisocyanate (MDI).

### APPLICATIONS

The **Poliuretano Spray** system is sprayed according to a mixing ratio of 1:1 by volume using high-pressure equipment provided with heating means. Its main application is the improvement of thermo-acoustic insulation in building walls, ie both partitions between rooms and facades. Once sprayed and cured, it has a density ranging from 6 to 12 g/l and a core density ranging from 6 to 10 g/l; these values are typical for a 200mm coat.

#### Application advantages:

- Complete suppression of thermal bridges. Since it is continuous, the insulation does not have any joints or cracks.
- Good adhesion to the substrate. No glues or adhesives need to be used for installation.
- Mobility. It can be taken to construction sites in no time, there being no need to haul to or store on the site bulky products as in the case of other insulating materials.
- Sealing of gaps, thus muffling the passage of sound.

### CHARACTERISTICS OF THE COMPONENTS

Characteristics	Units	H	S-OC-008
Specific weight @ 20°C	g/cm <sup>3</sup>	1.23	1.04
Viscosity	cPs	150-250 (@ 25°C)	300-600 (@ 22°C)
Free NCO content	%	30-32	-

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### SYSTEM SPECIFICATIONS

The specifications of the system were measured in a test vessel at 22°C with the mixing ratio specified in Synthesia Technology's standard (MANS -01) and as per Annex E of product standard EN 14315-1.

Specifications	Units	S-OC-008
Cream time	s	5 ± 2
Gel time	s	12 ± 4
Set-to-touch time	s	14 ± 5
Free density	g/l	7,5 ± 1

### PREPARATION OF THE SUBSTRATE

Surfaces should be clean, dry, and free of dust and grease so that the foam can properly adhere to the substrate; if the substrate is a metal, it should also be free of rusting. In favourable conditions, the **Poliuretano Spray** foam adheres well to most building materials. Nevertheless, should its adhesion prove to be insufficient, a suitable primer should be used.

This system, however, is not guaranteed to adhere to all types of substrates and primers. Consequently, the user should carefully study each specific case.

### SPRAYING PROCESS

Prior to loading it in the machine, Component A should be homogenised for 30 minutes using a suitable mechanical stirrer at a low stirring speed. The drum of Component A has been designed to be used under such conditions.

The coat thickness can be easily controlled and modified by varying the spray rate and/or the mixing chamber of the gun. The product can be sprayed in one or two coats until the right thickness is achieved. For thicknesses greater than 200 mm, spraying two coats is recommended.

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The foam's performance is affected by quite a few factors, which are listed below:

- The atmospheric conditions: ambient/room and substrate-surface temperature and humidity and other environmental factors (wind...).
- The settings of the equipment.
- The correct mixing ratio.
- The type of application: vertical, horizontal, or upside down.
- The application method: coat thickness, use of varnish.

In order for the foam to have an optimal performance and properties, the application conditions listed in the following table should be taken into account:

		S-OC-008
<b>SETTINGS OF THE EQUIPMENT</b>		
Component mixing ratio		1:1 by volume
Temperature of the components		20-30°C
Temperature of the hoses and pre-heaters		55-65°C
Static pressure		1500-1800 psi / 100-120 bar
Maximum difference in dynamic pressure between components		290 psi / 20 bar
<b>ENVIRONMENTAL CONDITIONS</b>		
Ambient/room temperature		5-40°C
Wind speed		≤ 30 km/h
<b>SUBSTRATE CONDITIONS</b>		
Temperature		5-40°C
Moisture	Porous substrates	≤ 20%
	Non-porous substrates	No surface condensation

Please note that, for the same thickness, the smaller the number of coats, the higher the foam's performance. However, it is not advisable to spray coats with thicknesses exceeding 200 mm in order to prevent air pockets from forming and running into problems owing to the strong exothermic characteristics of the reaction and thus for the foam to maintain its properties.

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### CHARACTERISTICS OF THE FOAM

Characteristics		Units	S-OC-008
Closed cells	ISO 4590	%	< 20
Thermal resistance & thermal conductivity	EN 12667 EN 12939	-	See the table of characteristics below
Reaction to fire (exposed foam)	EN 13501-1	Euroclass	F
Water absorption ( $W_p$ )	EN 1609	kg/m <sup>2</sup>	≤ 3
Water vapour resistance factor ( $\mu$ )	EN 12086	-	≥ 5

#### Table of characteristics

Sprayed-on CCC1 insulation foam (uncoated or open to diffusion).

$t_p$	35	40	45	50	55	60	65	70	75
$\lambda_D$	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
$R_D$	0.90	1.10	1.15	1.30	1.45	1.55	1.70	1.80	1.95
$t_p$	80	85	90	95	100	105	110	115	120
$\lambda_D$	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
$R_D$	2.10	2.20	2.35	2.50	2.60	2.75	2.90	3.00	3.15
$t_p$	125	130	135	140	145	150	155	160	165
$\lambda_D$	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
$R_D$	3.25	3.40	3.55	3.65	3.80	3.95	4.05	4.20	4.35
$t_p$	170	175	180	185	190	195	200	205	210
$\lambda_D$	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
$R_D$	4.45	4.60	4.70	4.85	5.00	5.10	5.25	5.40	5.50
$t_p$	215	220	225	230	235	240	245	250	255
$\lambda_D$	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
$R_D$	5.65	5.80	5.90	6.05	6.15	6.30	6.45	6.55	6.70
$t_p$	260	265	270	275	280	285	290	295	300
$\lambda_D$	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
$R_D$	6.85	6.95	7.10	7.25	7.35	7.50	7.60	7.75	7.90

$t_p$  Thickness of the foam (mm)  
 $\lambda_D$  Declared aged thermal conductivity (W/mK)  
 $R_D$  Thermal insulation (m<sup>2</sup>·K/W)

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### FIRE REACTION TEST

Characteristics	Units	S-OC-008
Reaction to fire <sup>(1)</sup> (Poliuretano Spray S-OC-008 + laminated drywall A1 & A2-s1, d0 of thickness 12,5 mm or higher)	EN 13501-1 Euroclass	B-s1, d0

<sup>(1)</sup> Report issued by Applus under File No 21/25415-1404-2.

### SAFETY RECOMMENDATIONS

**Poliuretano Spray S-OC-008** (Component A) causes skin irritation and severe ocular lesions. In addition, it is detrimental to human health and to the aquatic environment.

**Isocianato H** (Component B) causes skin, eye and airway irritation. It can also cause irreversible damage to human health by inhalation or through contact with the skin.

When working with the product, the workers should wear complete personal protective gear, including a full face-mask breathing apparatus (which should supply fresh air if working inside confined, unventilated spaces), protective workwear, and safety gloves. Any other workers who are not going to take part in the application of the product should stay clear from the area. In addition, additional ventilation might be required in the form of natural or forced draught ventilation to prevent gases from building up and moving into other occupied areas of the building during the spraying process.

**In the case of already occupied buildings, a 24h waiting period before reoccupation is recommended.**

When handling the system and/or the products, it is advisable to take all safety and precautionary measures described in each product's MSDS.

### SUPPLY FORM

Check with the Sales Department the different supply formats.

### STORAGE RECOMMENDATIONS

**VERY IMPORTANT:** The components of the **Poliuretano Spray S-OC-008** system are sensitive to moisture, so they should be stored in airtight drums or tanks. **The storage temperature should fall within the +10-to-+30°C temperature range.** At lower temperatures, the viscosity of the polyols increases considerably, thereby hindering application. In addition, the isocyanate might crystallise. High temperatures can cause changes in the polyols.

**In order for the system to maintain the aforementioned characteristics, the drums should be kept tightly closed when not in use.**

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Under proper storage conditions, the shelf lives are 6 months for S-OC-008 and 9 months for Component B (isocyanate).

*This is the best information available, although not guaranteed, due to the complexity of the use of raw materials and equipment, which may alter the results.*