

Phono Spray

I 905

Isocyanate

H

DESCRIPTION

Phono Spray I 905 is a thermo acoustic two-component Polyurethane System comprising polyol, and isocyanate. The system is "in situ" injected obtaining open cell low-density rigid foams with excellent acoustic absorption properties. The application of **Phono Spray I 905** in a given constructive solution improves the overall acoustic insulation of said solution.

Phono Spray I 905 system does not contain "Ozone Depleting Potential" blowing agents (CFC and HCFC).

COMPONENTS

COMPONENT A: **Phono Spray I-905**
Mixture of polyols, containing catalysts and flame-retardants.

COMPONENT B: **Isocyanate H**
MDI (Methane diphenyl diisocyanate).

USES

Phono Spray I 905 system is applied with a high-pressure pouring equipment, which is heating outfitted, with a mixing ratio of 1:1 in volume. Its main application is the improvement of acoustic insulation to airborne noises for building restoration, as well as in partition walls between adjacent neighbour's homes and in exterior facade.

This is a significantly slower system than the thermal insulation **Poliuretán® S Spray** so a few minutes should be allowed before making any verification of the foam quality. The recommended hoses temperature is in the range of 30-50 °C depending on environmental conditions. The recommended minimum temperature of the substrate during spraying is 5 °C.

Application advantages:

- Total suppression of acoustic and thermal bridges.
- Good adherence to the substrate.
- Mobility. Fast access and transportation to any site without having to carry or store bulky products like other acoustic and/or thermal insulating materials.

CONDITIONS OF USES

Phono Spray I 905 system provides an excellent adherence to all building materials (concrete, ceramic, laminate plaster, wood, etc.) always bearing in mind the substrate condition that should be clean, dry and dust and oil free.

BEFORE BEING LOADED INTO THE MACHINE, COMPONENT A (Phono Spray I 905) MUST BE HOMOGENISED FOR 5 - 10 MINUTES IN A SUITABLE MECHANICAL MIXER (above 1500rpm).

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Depending on the weather conditions and during the application, a great deal of water vapour forming white cloud shapes released by the foam could take place. These vapours do not represent any risk to human health. In any case, it is recommended to ventilate the area before reassuming the work in order to avoid an excessive concentration of uncomfortable water vapour.

The yield of the foam is influenced by different factors, which are listed below:

- Weather conditions: temperature, humidity, wind, etc...
- Substrate surface conditions: temperature and humidity.
- Thicknesses to fill (see table).
- Adjustment of the equipment: appropriate ratio.

GENERAL INSTRUCTIONS

Phono Spray I 905 system is applied by pouring mainly to fill-in cavities between partition walls in buildings especially in new construction and restoration in order to obtain good thermal/acoustic insulation.

Regarding the insulation during restoring works it is advisable to pay extra attention while fill-in gaps or cavities in the partition walls. There is a risk that the pressure of the foam while expanding could fracture or even tear down the wall by contraction overpressure.

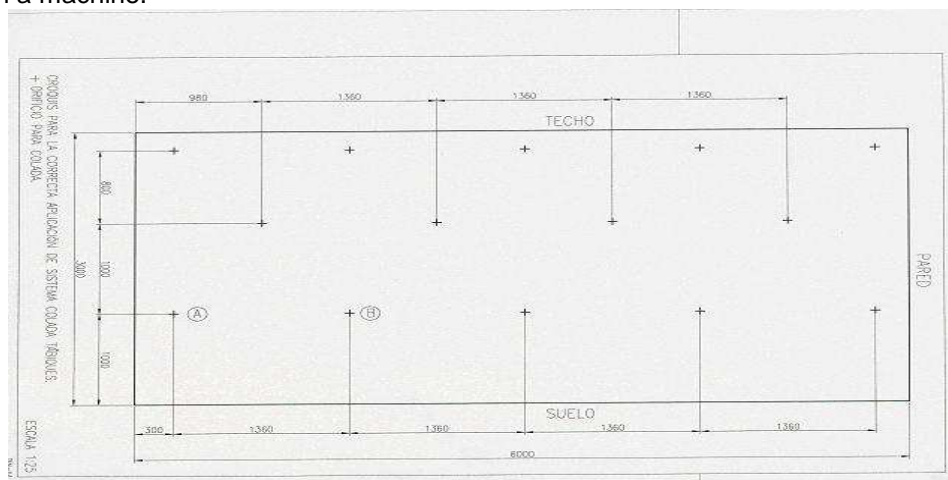
Follow the instructions suggested in the drawing below, in order to homogeneously fill-in the partition wall.

Begin to inject an approximate amount of product depending on thickness (never longer than the foam cream time) at the bottom of a corner (hole A) until the foam goes through the said hole A.

Afterwards, proceed with the following injection of product in hole B. Subsequently, continue injecting all through the entire wall. Then, go forward to the top line and carry out as the previous operation at the interspersed injection points.

Finally, perform the same operation at the top holes; it is advisable that these are the closest to the ceiling as possible in order to achieve a complete and uniform application.

A spray gun with no projection diffuser or pouring gun AR-250 is recommended if these operations are carried out with a machine.



Drawing for the correct application to fill walls.

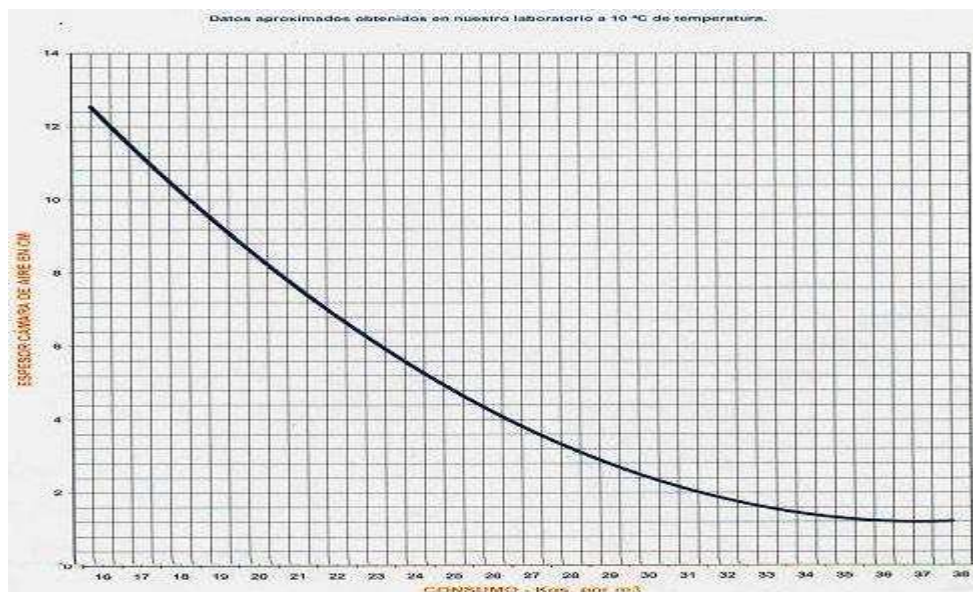
+ pouring holes

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Graphic of the consumption per cubic meter depending on the thickness to be filled-in

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EQUIPMENT CLEANING

It is recommended the use of machines exclusively intended for the application of Phono Spray I 905 in order to avoid any probably source of contamination caused by other polyurethane system previously applied with the equipment, thus bad purging of the machine can adversely affect the properties of the system to be poured. In general, follow the procedure detailed below between different products:

- 1) When a few square meters are still to be sprayed with the thermal insulation system, the polyol pump must be changed from one drum to the other and start pumping **Phono Spray I 905**. One product will remove the otherone inside the hose while the remaining area is sprayed with the thermal insulation.
- 2) Briefly (depending on hose length) **Phono Spray I 905** will go out through the gun. This moment is easily detected since **Phono Spray I 905** is blue.
- 3) When **Phono Spray I 905** begins the foaming it is advisable to reject the initial foam, as it could still be contaminated with **Poliuretano® S Spray** thermal insulation.

As soon as it is proved that the product is correctly formed (bluish colour, flexible tact) proceed with the application as usual.

In that way, the changes between one product and another will not generate residual products.

When the thermal insulation **Poliuretano® S Spray** is intended to be sprayed again, it is necessary to repeat the process changing a product by the other and checking the correct formation of the foam, this time it must be yellow. It could be observed small lines of blue colour corresponding to small quantities of **Phono Spray I 905** during the first application meters of **Poliuretano® S Spray**. This small change in colour has not significant effect on the foam quality.

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FOAM SPECIFICATIONS

Characteristics		Units	I-905
Applied average density (100mm thickness)	UNE-EN 1602	Kg/m ³	12 ± 2
Compressive Strength	UNE-EN 826	KPa	10 ± 3
Dimension stability -30°C 24 hours 60°C		% Vol.	0.5 0.5
Closed cell content	ISO-4590	%	<10*
Thermal Conductivity Coefficient 10°C	UNE 92202:1989	W/m°C	0.036*
Sound Absorption Coefficient	UNE EN 29053:1993	-	0.5
Air Flow Resistivity r	UNE EN 29053:1993	Kpa s /m ²	5-6
Dynamic Stiffness s'	UNE EN 29052/ 1	MN /m ³	4.83
Water vapour transmission coefficient (μ)	UNE EN 12086:1998	-	4**

*Data obtained in our laboratory.

** Certified by Applus in Barcelona file number: 5046140 dated December 3rd 2005

*** Certified by CEIS file number: LAT0067/08 dated June 25, 2008.

**** Certified by APPLUS file number: 08/32309712 dated July 30, 2008.

FIRE REACTION TEST

Characteristics		Phono Spray I 905
*Reaction to fire	UNE EN 13501-01:2002	Euroclass B S1 D0

* Constructive solution of end-use application.

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ACOUSTIC ABSORPTION TEST

The sound absorption of **Phono Spray I 905** was determined at different frequencies, according to standard UNE-EN 20354:1993, in a reverberating chamber. The following table shows the results obtained as well as the sound absorption of a closed cell polyurethane foam for thermal insulation such as **Poliuretán® S Spray** :

Frequency (Hz)	Acoustic absorption coefficient UNE-EN 20354:1993	
	Phono Spray I 905*	Closed cell PU**
125	0.20	0.12
250	0.40	0.18
500	0.80	0.27
1000	0.60	0.19
2000	0.40	0.62
4000	0.50	0.22
NRC***	0.50	0.32

* Certified by Applus in Barcelona file number 3009439 dated October 22nd, 2003.

** Data extracted from the technical information published by ATEPA (www.atepa.org).

*** NRC states for the Noise Reduction Coefficient.

ACOUSTIC INSULATION TEST

Acoustic insulation test for airborne noise have been carried out according to UNE-EN ISO 140-3:1995 in a vertical restoration watershed face typical facade as well as in new type of laminated plaster partition walls.

WATERSHED RESTORATION

A constructive restoring solution has been implemented consisting of a vertical ceramic blocks where **Phono Spray I 905** was applied.

DESCRIPTION OF THE FACE (RESTORATION)	Sound reduction index UNE-EN ISO 140-3:1995	
	R _a (dBA)	R _w (dB)
LP ½ pie* + Phono Spray I 905 (100 mm) + LHS5**	51.3	51

(*) Ladrillo Perforado colocado a ½ pie de medidas 24 x 11,5 x 7 cm

(**) Ladrillo Hueco Simple de medidas 24 x 11,5 x 5 cm

Certified by LABEIN. File number 90.4950.0-IN-CT-08/38 II dated July 21, 2008.

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LAMINATED PLASTER PARTITION-WALL IN ADJACENT NEIGHBOUR'S HOMES

A constructive solution has been implemented for partition walls in adjacent neighbour's homes consisting of a double partition of laminated plaster plaque of 15 mm thickness; each plaque injected with **Phono Spray I 905**. Each module is 46 mm thickness and 600 mm wideness.

DESCRIPTION OF THE FACE (PLASTER LAMINATED PLAQUE)	Sound reduction index UNE-EN ISO 140-3:1995	
	R _a (dBA)	R _w (dB)
PYL15 + Phono Spray I 905 (46mm) + PYL15	33.3	35

* Plaster Laminated Plaque 15mm thickness. Certified by LABEIN. File number 90.4950.0-IN-CT-08/38 III dated July 24, 2008.

STORAGE RECOMEMNDATIONS

Components A and B are sensitive to moisture, and must be stored in hermetically sealed drums or hermetic containers. Storage temperature must be kept between +15°C and +25°C. Avoid lower temperatures that may build up crystallizations in the isocyanate, as well as higher temperatures that may alter the polyol and produce swelling of the drum.

Properly stored, the shelf life is 6 months for the Component A (polyol) and 9 months for the Component B (isocyanate).

SAFETY RECOMMENDATIONS

Properly handled, **Phono Spray I 905** system does not present significant risks. Avoid contact with eyes and skin. The instruction given in the Safety Data Sheet must be followed during the manufacturing and handling of the product.

SUPPLY

Normally, **Phono Spray I 905** is supplied in non-returnable steel drums. For component A drums of 50 litres (50Kg) and 230 litres. (225kg). For component B drums of 50 litres (50 kg) and 230 litres (250 kg).

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ANNEX: APPLICATION TROUBLESHOOTING

Our Technical-Commercial customer service will give you advice for any queries you may have on the preparation of this product. Nevertheless, some of the problems that may appear during the process are outlined below:

Problem	Possible cause	Solution
Uneven atomisation.	Needle /gun wrongly adjusted or dirt in the mixing chamber.	Adjust the position Clean the chamber.
Coloured streaks.	Bad mixing due to components obstruction or differences in viscosity.	Check pressures, fix obstruction. Adjust and raise temperatures.
Poor and closed atomisation.	High component viscosities. Cold temperature.	Rise temperatures and pressures.
Atomising too open and mist formation.	Excess of air in gun tip. Excessive pressure of mixing.	Reduce air passage. Reduce a little the pressure.
The material reacts slowly and it falls off.	Cold surface.	Rise hose heating.
Excessively fast material, uneven finishing with mist.	Pressure excess.	Reduce the air pressure in the gun and the mixing pressure.
The material is granulated as it gets on the surface and obstructs the gun.	Temperature excess.	Reduce hose heating.
Random shape bubbles are formed in the surface of the material.	It is applied on a surface that is too hot.	Wait the surface to cool down.
	Contamination with the formerly used product.	Let the presently used product to go through the hose a little bit more.