

Phono Spray I-905

DIVISION: PU SYSTEMS

INTRODUCTION

Phono Spray I 905 is a two-component Polyurethane System comprising polyol, and isocyanate. The system is “in situ” injected and open cell low-density rigid foam with acoustic absorption properties is obtained. The application of Phono Spray I 905 in a constructive solution given improves the overall acoustic insulation of this solution.

Phono Spray I 905 system does not contain ozone depleting blowing agents (CFC and HCFC).

DESCRIPTION OF COMPONENTS

COMPONENT A : Mixture of polyols, containing catalysts and flame-retardants.

COMPONENT B : MDI (Methane diphenyl diisocyanate).

DENOMINATION OF COMPONENTS

COMPONENT A : Polyol Phono Spray I 905

COMPONENT B: ISOCYANATE H

APPLICATIONS

The 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 in acoustic insulation to airborne noises for buildings rehabilitation, as well as in walls between neighbours and in exterior facade.

The system is significantly slower than the thermal insulation Poliuretán® S Spray thus you should expect a few minutes before making any verification of the quality of the foam obtained.

The recommended temperature in hoses is 30 to 50 ° C depending on environmental conditions. The recommended minimum temperature of the substrate during projection is 5 °C.

Application advantages:

- Total suppression of acoustic and thermal bridges.
- Good adherence to the substrate.
- Mobility. It is possible to get quickly to any site without having to transport or store bulky products like other acoustic and/or thermal insulating materials.

APPLICATION CONDITIONS

The adherence of Phono Spray I 905 system is excellent with all the materials used in construction (concrete, ceramic, laminate plaster, wood, etc.) provided that these are clean, dry and free dust and oil.

During the application, depending on weather conditions might shed from the foam large quantities of water vapor in a white cloud shape. These vapours not mean any risk to human health. In any case it is recommended to ventilate the area before proceeding with work to avoid an excessive concentration of water vapor that might be uncomfortable.

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

The application of I 905 by pouring is used primarily in filling cavities between walls in buildings especially in new construction and rehabilitation, to get a good thermal acoustic insulation.

In the case of isolation in rehabilitation, we must take extra caution when they are filled voids or cavities between walls. There is a danger that the pressure of the expanding foam can fracture or even throwing the wall, both by overpressure for shrinkage.

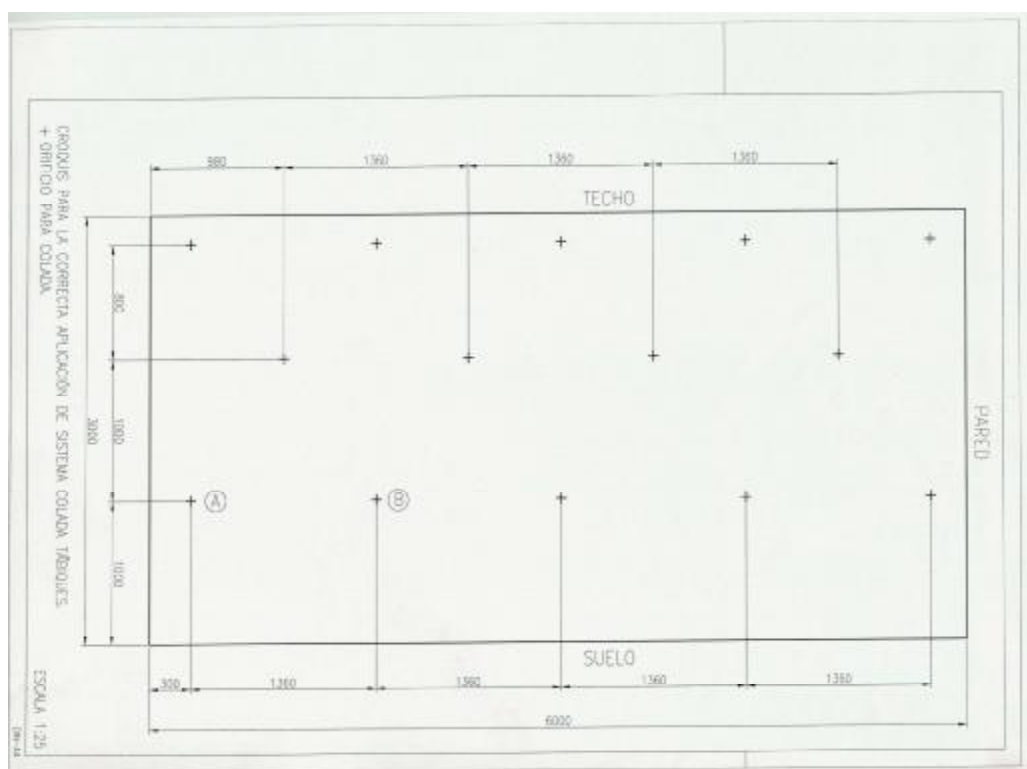
Under the instruction of the drawing below, you'll fill the wall so homogeneous.

Start with the bottom of a corner, hole A, pouring an approximate amount depending on thickness (never longer than the foam begins to grown) until it leave through the same hole A.

Then the next pouring is injected into the hole B, and until the end of the wall, then goes to the top file doing the same operation earlier in interspersed points injection.

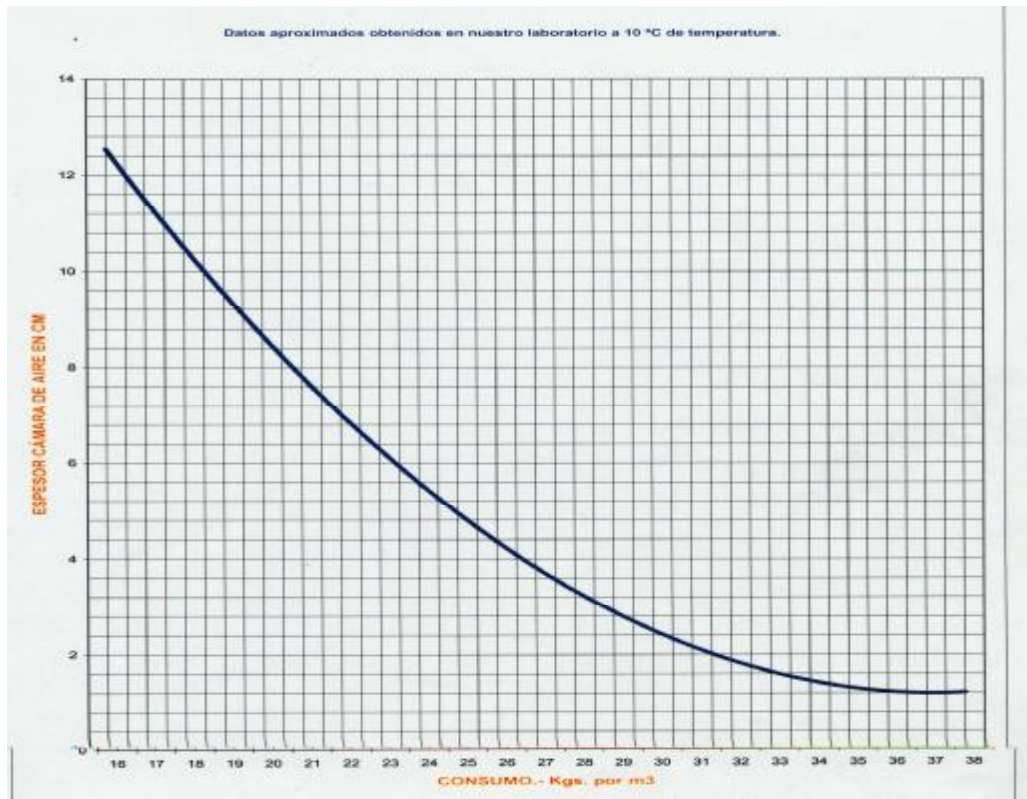
Finally perform the same operation in the top holes, it is advisable that these are the closest to the ceiling as possible so that everything is full and uniform.

If this is done with a machine you can use a spray gun without the projection diffuser or pouring gun AR-250.



Drawing for the correct application to fill walls.
+ pouring holes

Graphic of the consumption per cubic meter depending on the thickness to fill PHONO SPRAY I 905 / H



EQUIPMENT CLEANING

It is recommended to assign exclusive machines for the application of Phono Spray I 905 in order to avoid any source of contamination that may come from another polyurethane system used in the same equipment, thus bad purging of the machine can adversely affect the properties of the system to be pouring. In general the procedure to follow when changing from one product to another is detailed as follows:

- 1) When a few square meters remain from being 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 displace the other inside the hose while the remaining area is sprayed with the thermal insulation.
- 2) Briefly (depending on hose length) Phono Spray I 905 will start going out from the gun. This moment is easily detected since Phono Spray I 905 is blue.
- 3) When Phono Spray I 905 starts to foam it is advisable to reject the initial foam, it could still be contaminated with the thermal insulation product Poliuretano® S Spray.

- 4) When it is proved that the product is correctly formed (bluish colour, flexible tact) it is possible to start with the application.

Carrying out the change from one product to the other in this way, generation of residues will be avoided.

When the thermal insulation product Poliuretano® S Spray is going 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 is possible that during the first applied meters of Poliuretano® S Spray , small lines of blue colour corresponding to small quantities of the product Phono Spray I 905 . This small colour changes do not affect of significant by to the foam quality can be observed.

CHARACTERISTICS OF THE COMPONENTS

CHARACTERISTICS	UNIT	H	Phono Spray I 905
Specific weight 25°C	g/cm ³	1,23	1,10
Viscosity 25°C	mPa.s	230	300
NCO Content	%	31	-

TECHNICAL DATA OF SYSTEMS

Measured in a test recipient at 22°C at the indicated mixing ratio and according to our Standard Test (MAN-S01).

MIXTURE RATIO A / B: **100/100** **by volume**
 100/110 **by weight**

SPECIFICATION	UNIT	Phono Spray I 905
Cream Time	s	15 ± 3
Gel Time	s	50 ± 5
Free rise density	g / l	20 ± 2

FOAM PROPERTIES

PROPERTIES	UNIT	Phono Spray I 905
Applied average density UNE-EN 1602 (100mm thickness)	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 20°C 10 days UNE-92202/89	W/m ^o C	0.035-0.040*
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.

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 obtained results as well as 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 rehabilitation watershed faces type facade as in new type of laminated plaster between neighbours.

REHABILITATION WATERSHED

A constructive solution has been determined consisting of a vertical ceramic blocks where Phono Spray I 905 were applied.

DESCRIPTION OF THE FACE (REHABILITATION)	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.

LAMINATED PLASTER PARTITION BETWEEN NEIGHBORS

A constructive solution has practised for partition between neighbours 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.

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 system.

SUPPLY OF THE PRODUCT

Normally, Phono Spray I 905 is supplied in non-returnable steel drums of 50 and 200 litres (blue colour for component A and black colour for component B).

STORAGE AND USAGE RECOMMENDATIONS

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 3 months for the Component A (polyol) and 9 months for the Component B (isocyanate).

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	POSIBLE 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.