

# MANUFACTURER INSTRUCTION

# PURIOS 2000

## Closed-Cell Spray Polyurethane Foam Insulation Systems

### GENERAL INFORMATION

Purios 2000 Closed – Cells Systems are two-component polyurethane systems for producing of rigid polyurethane foam with closed cell structure, applied "in – situ" spray as thermal insulation.

Components Purios 2000 Systems do not contain blowing agents that deplete the ozone layer of the Earth.

### DESCRIPTION OF THE COMPONENTS

**Component B:** a mixture of polyols containing catalysts, flame retardants, and blowing agents.

**Component A:** Purios A (polymeric diphenylmethane 4, 4' diisocyanate).

### APPLICATION AND ADVANTAGES OF PURIOS 2000 SYSTEMS

Components **Purios 2000 Systems** are applied by spraying using a dedicated spray equipment in relation metering 1: 1 by volume. The main purpose of the system is thermal insulation inside and outside the building.

#### Advantages of the systems:

- Ideal insulation without thermal bridges
- Very good adhesion to the surface requires no additional adhesives and connectors
- Thermal insulation in a single application process obtained by the closed cell structure foam and without joint less layer
- Speed applications not requiring the storage of dealing with large storage space, as in the case of mineral wool or polystyrene (XPS, EPS)
- Stiffening of the building structure

### GENERAL RULES AND RECOMMENDED APPLICATION CONDITIONS

The foam quality is dependent on the following factors:

- Terms of weather: temperature and humidity of environment and spray surface
- Setting the machine parameters of spray - the correct mixing ratio, pressure, temperature components, and hoses
- Type of application: vertical, horizontal, diagonal (attic)
- Layer thicknesses - applying the recommended thickness of the layers Purios 2000 System provides optimum parameters foams

### SURFACE PREPARATION AND APPLICATION SYSTEM

The surface which will be applied polyurethane Purios 2000 Systems must be clean, dry, stable surface free of dust, oil to ensure adequate adhesion to the substrate. In the case of metal surfaces, they should be free from metal oxides and rust.

Purios 2000 System can be applied to any type of substrate, except for substrates with a thermoplastic material, galvanized sheet (unprepared), glass and painted surfaces before they are matt by chemical or mechanical.

**Note: Regardless of the type of substrate is encouraged to try adhesion of polyurethane foam to the surface.**

**Note:** Before starting the application is recommended to check the accuracy of the machine and system parameters by performing spray foam panel (e.g. OSB, gypsum - cardboard, cardboard), excision samples with dimensions 3,9 x 3,9 x 3,9 in to measure apparent density foam and comparison the results with the values declared in the Technical Information.

### THE THICKNESS OF THE SPRAY

The recommended thickness of the spray layer is controlled by choosing a suitable nozzle and the speed of the application and **should be in the range between 2 – 4 in.** Keep in mind that the quality of the insulation is better if the layers are applied comparable thickness. **One layer should never exceed the upper range of thickness** due to problems of heat release during the foaming reaction and weaken the dimensional stability of the foam.

The recommended the minimum thickness of 1,2 in spraying.

### THE IMPACT OF WEATHER CONDITIONS ON THE SYSTEM AND APPLICATION

Keep in mind that the temperature of the components has a big impact on response times.

On the cold surface of the first layer react longer and the foam usually not reaches 100% of the thickness.

Accordingly, the surface of the first layer is heated surface so that the next layer has increased accordingly. Too hot surface will appear problems with the adhesion of foam to the substrate.

Therefore, it is important to pay attention to the recommended surface temperature applications.

#### RECOMMENDED IN THE APPLICATION

Temperature components to the application (in barrels)	41 °F – 77 °F
The minimum surface temperature	59 °F
The maximum surface temperature	122 °F
The recommended range of surface temperature	59 °F – 77 °F
Minimum ambient temperature (which hosts an application)	59 °F
Recommended ambient temperature range (which hosts an application)	59 °F – 86 °F
Relative humidity of air	max. 60 %
Relative humidity surface:	
Cardboard - gypsum plate	4,5 – 7,0 %
Semipermeable membrane *	0 – 0,5 %
Corrugated cardboard	4 – 7 %
Wood	11 %
Concrete (after aging for 28 days)	5 – 6 %

\* Semi-permeable membrane - refer to the manufacturer's instructions

#### RECOMMENDED PARAMETERS SPRAY

TEMPERATURE HEATING BLOCKS	104 °F – 131 °F
TEMPERATURE HOSE	104 °F – 131 °F
PRESSURE	1300 – 1600 psi

**Please note that these are theoretical values and parameters depend on the outside conditions.**

**During the execution of the application should be corrected according to the changing external conditions.**

**Note** also the relative humidity of the air (max. 60%), especially for applications in confined spaces. Too high humidity adversely affect foam quality and adhesion to the surface.

**Note:** For outdoor applications, secure workplace from wind gusts. It can cause uneven arrangement of the layers of foam and entrained fine droplets of the system in addition to material losses, may be deposited in places not desired (surrounding buildings and cars). With the application of internal, secure windows, movable and immovable property which may become dirty during application.

After the end of the application is required period seasoning foam 48 h and time of airing investments 48 h in the conditions of carrying out the application. During this time, it is forbidden to cutting, grinding foam. During the seasoning, the foam should provide conditions like the conditions under which conducted the application (temperature and humidity of the application).

#### MIXING RATIO

Preserve the stability of the mixing ratio during operation is very important for the quality and stability of the resulting foam.

**Note:** Before start working, it is recommended to check the correct operation of the machine by performing the spray test while observing the correct operation of the machine. A large pressure differential component (over 10% between the components) during spraying may indicate problems with the machine spray - is required the intervention of service - in this case, it is prohibited to continue the work until the removal of the cause.

#### MAINTENANCE AND PROTECTION OF FOAM

Rigid PUR foam is exposed to atmospheric conditions, darkens, and cell structure is destroyed because of UV rays. It should, therefore, be protected by covering the respective protective coatings, especially for the outdoor surface.

Recommended coatings are dedicated polyurethane foam providing UV resistance and resistance waterproofing.

Because of the weather, a protective coating should be applied in accordance with the manufacturer's instructions coating. Also, the minimum application time and the possible need for adhesion promoters should consult the manufacturer of the coating.

#### SAFETY RULES

Purios 2000 Systems for correct use does not pose a threat to human life and health. Avoid contact of components with skin and eyes. During the application used clothing and gloves, use face protection and breathing apparatus.

Before working with the Purios 2000 System refer to the content and adhere to the recommendations contained in the Material Safety Data Sheet, Declaration of Performance and Information Technology. **In case of doubt, or when disturbing adverse events during application, discontinue use and contact the manufacturer of the system.**

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