WHITECHEM SPR 230

Closed Cell, Rigid Spray Polyurethane Foam

CE

1 – PRODUCT DESCRIPTION

WHITECHEM SPR 230 is a two component (polyol - isocyanate), rigid spray polyurethane foam system with closed cell structure which is applied with high pressure and heated special spray machines for heat insulation purpose.

WHITECHEM SPR 230 contains ecological blowing agents (HFC) that do not damage the ozone layer (ODP = 0).

2 – COMPONENTS

Component A: **WHITECHEM SPR 230**
Mixture of polyols, catalyst, flame retardant and blowing agents

Component B: WHITECHEM P-MDI / RPS
Polymeric MDI

3 – PRODUCT FEATURES

- Two component
- Closed cell structure
- B2 (E) fire reaction
- Easy and high application speed (~ 1000 m² per day)
- Seamless, no heat bridge
- Self-adhesive properties on many surfaces (concrete, wood, metal etc.)
- Does not grow insect and fungus
- Excellent thermal insulation for a long time (70-80 years)
- High energy saving
- Water vapor permeability
- Excellent mechanical properties
- Low storage and transportation cost
- Partial sound insulation

4 – APPLICATION AREAS

- Foundation and curtain concrete
- Roof
- Floor
- Wall
- Ceiling
- Attick
- Chicken farms and barns
- Ships and storage tanks
- Cold storage room
- Other thermal insulation areas

5 - APPLICATION CONDITIONS

- The application surface should be clean and dry, the elements that prevent adhesion should be cleaned from the surface. Do not wash to clean the surface.
- Recommended temperature of application surface is between 5 ° C and 40 ° C.
- The recommended air temperature is between 10 ° C and 40 ° C.
- It is not recommended to apply in windy weather.
- Recommended component temperatures and machine settings are as follows.

Parameters	Data
Component A (Polyol Blend) Temperature	40-45°C
Component B (Polymeric MDI) Temperature	40-45°C
Hose Temperature	35-45°C
Machine Pressure	80-110 bar

* Settings may vary depending on weather conditions and machine specifications.

- In order to obtain mixture in the right ratio, the filters of the machine should be cleaned and pump maintenance should be done. Improper mixing ratio of components results in low quality foam formation. In addition, the improper mixing ratio causes the adhesion problem, the increase in consumption, the deterioration of the cell structure and the foam not reaching the desired hardness.

Mixing Ratio	Unit	Data
A/B	By volume	100 / 100
	By weight	100 / 109

6 – APPLICATION INSTRUCTIONS

- **WHITECHEM SPR 230** is applied in layers to the surface to be thermal insulation until the desired thickness is obtained. Application is made in different thicknesses according to the regional climate conditions and application areas.
- The ideal application thickness for each layer is between 1.0 cm and- 2.0 cm. If thicker than 2.0 cm is applied, blistering may occur due to exothermic reaction.
- Since the surface is generally cold in the first layer application, the reaction is slow and the desired thickness can not be obtained. Therefore, the first coat application is usually applied as a primer layer. In the second layer application to be applied, the desired thickness will be obtained more easily because the surface is warmer.
- In outdoor applications which is under direct sunlight, the foam color becomes darker after a period of time, the foam surface becomes dusty and the foam becomes more brittle. Polyurea (**WHITECHEM POLYUREA Series**), liquid PU membrane (**WHITECHEM PU MEMBRANE Series**) or acrylic membrane (**WHITECHEM AC MEMBRANE 600**) must be applied to protect the foam from UV rays.

7 – CONSUMPTION

- Material consumption may vary for many reasons. These reasons are the air temperature, application surface temperature, machine temperature settings, mixing ratio, number of application layers and so on.
- According to the application thickness and the number of application layers the theoretical consumption table is as follows.

Application Thickness	Consumption (kg)
3 cm	1,50 – 1,80
5 cm	2,40 – 2,70
10 cm	4,50 – 5,00

***** The applied layer thickness is between 1,00 cm - 1,50 cm.

8 - TECHNICIAL SPECIFICATIONS

Component Properties

	Unit	A Component	B Component
Chemical Structure	-	Polyol Blend	Polymeric MDI
Physical Appearance	-	Liquid	Liquid
Color	-	Yellow	Brown
Density (20°C)	gr/ml	1,13 ±0,03	1,23 ±0,03
Viscosity (25 ° C)	cps	200 ±50	220-250
NCO Content	%	-	30-31
OH Content	mgKOH/g	280-300	-

Reaction Parameters

	Unit	Data
Cream Time	sec.	3-4
Gel Time	sec.	6-8
Tack Free Time	sec.	8-10
Free Rise Density	kg/m3	29±1

* Tests were performed at 15 ° C under laboratory conditions.

Finished Product Features

Test Name	Unit	Method	Data
Application Core Density	kg/m³	-	> 35
Closed Cell Content	%	EN 4590	≥ 90
Fire Reaction	-	EN 13501	E
		DIN 4102	B2
Service Temperature	°C	-	-30 - 100
Water Absorption Amount	kg/m²	EN 1609	0,20 (Declarated)
			< 0,20 (Measured)
Thermal Conductivity Coefficient	(W/m.K)	EN 12667	0,021
Thermal Conductivity Coefficient of Aging	(W/m.K)	EN 14315	0,028 (Declarated)
			~ 0,027 (Measured)
Compressive Strength	kPa	EN 826	300 (Declarated)
			~ 310 (Measured)

9 - PACKING

230 kg blue barrel (A component - Polyol Blend)
250 kg red barrel (Component B - Polymeric MDI)

10 - SHELF LIFE AND STORAGE CONDITIONS

- **WHITECHEM SPR 230** components are moisture sensitive. For this reason, it should be stored in original, unopened and undamaged packages, in store which is dry and not under direct sunlight.

	Unit	A Component	B Component
Shelf Life	Month	6	12
Storage Temperature	°C	15-25	15-25

- Storage of the components at low temperature can lead to increased viscosities of the components resulting in difficulty in application and crystallization of component B (polymeric MDI).
- Storage of the components at high temperature causes evaporation of the blowing agent in component A (polyol mixture) and swelling of the barrel. In addition, when the pump is placed in the drum, it causes the material to bubble uncontrollably.
  The lids of the completely non-consumed drums should be closed tightly to prevent air entrance to barrel.

11 – CLEANING

- Clean all tools and application equipment with suitable cleaner solvent immediately after use. Hardened and cured material can only be cleaned by mechanical methods.

12 - WARNING AND SUGGESTIONS

- Read the MSDS form carefully before using the **WHITECHEM SPR 230** product or when a problem is encountered and follow the written instructions.
- Personal protective equipment and full face mask with appropriate filter should be used during application.
- There must be sufficient air circulation in the application area.
- Give empty barrels to authorised hazardous waste collector companies