



BAYMER[®] SHPU-45FS-9

General Properties and Applications

Baymer[®] SHPU-45FS-9 is a polyol formulation used to produce spray foam insulation in multi layers for roofing, wall and basements with a density of 45 kg/m³. It contains all the raw material and auxiliaries necessary for the production of rigid polyurethane foam including the blowing agent 141b. The system is designed to fulfill fire standard DIN 4102-1 B2 under appropriate productions conditions.

Sampling

Moisture access should be prevented, formulation should be agitated before sampling.

Specification

Property	Value	Unit of measurement	Method
Hydroxyl number (theoretical)	280 ± 20	mg KOH/g	
Water content	1,35 ± 0,1	%	

Other Data*

Property	Value	Unit of measurement	Method
Density	approx. 1,16 ± 0.01	g/ml	

* These values provide general information and are not part of the product specification

Packaging

200l steel drums - IBC, tank truck and tank containers on request

Storage

Shelf life from time of delivery: 3 months if stored in sealed moisture tight containers.

Recommended storage temperature: 20-30°C

Labeling

This product data sheet is only valid in combination with the corresponding current safety data sheet! Any updating of safety relevant information – in accordance with EU directives – will only be reflected in the Safety Data Sheet, copies of which will be revised and distributed. For further technical information relating to safety, the Safety Data Sheet should be consulted.

Directions for Processing

Baymer[®] Spray systems are designed for processing on high and low pressure machines that are able to work at mixing ratios of 1:1 by volume, the machine parameters have to be selected in such way to ensure proper mixing.

Environmental Consideration and Substrate Temperatures:

BAYMER[®] SHPU-45FS-9

Applicators must recognize and anticipate climatic conditions prior to application to ensure highest quality foam and to maximize yield. Ambient air and substrate temperatures, moisture and wind velocity are all critical determinants of foam quality. Extreme ambient air and substrate temperature will influence the chemical reaction of the two components, directly affecting the yield, adhesion and the resultant physical properties of the foam insulation. To obtain optimum results, Baymer Spray should be spray-applied to substrates when ambient air and surface temperatures are between 10°C and 50°C. All substrates to be sprayed must be free of dirt, soil, grease, oil and moisture prior to the application of Baymer Spray. Moisture in any form: excessive humidity (>85%R.H.) rain, fog, or ice will react chemically will adversely affect system performance and corresponding physical properties. Application should not take place when the ambient temperature is within 3°C of the dew point. Wind velocities in excess of 20 km per hour may result in excessive loss of exotherm and interfere with the mixing efficiency of the spray gun affecting foam surface texture, cure, physical properties and will cause overspray. Precautions must be taken to prevent damage to adjacent areas from fugitive overspray.

Applicators should ensure the safety of the jobsite and construction personnel by posting appropriate signs warning that all "hot work" such as welding, soldering, and cutting with torches should take place no less than 35 feet from any exposed foam. If "hot work" must be performed all spray polyurethane foam should be covered with an appropriate fire or welder's blanket, and a fire watch should be provided.

Processing Equipment:

2:1 transfer pumps are recommended for material transfer from container to the proportioner. The plural component proportioner must be capable of supplying each component within $\pm 2\%$ of the desired 1:1 mixing ratio by volume. Hose heaters should be set to deliver 50°C to 55°C materials to the spray gun. These settings will ensure thorough mixing in the spray gun mix chamber in typical applications. Optimum hose pressure and temperature will vary with equipment type and condition, ambient and substrate conditions, and the specific application. Some equipment may require you to heat drums to achieve optimum material temperature. It is the responsibility of the applicator to properly interpret equipment technical literature, particularly information that relates acceptable combinations of gun chamber size, proportioner output, and material pressures. The relationship between proper chamber size and the capacity of the proportioner's pre-heater is critical. Contact your machine supplier representative for specific recommendations, pricing, and availability of spray and auxiliary equipment.

Per Pass Application:



BAYMER[®] SHPU-45FS-9

Applicators should limit Bayer Spray thickness to 7,5 cm per pass for optimal processing and physical properties. Second passes if necessary should be applied after 5-10 minutes of cure time. If additional passes are needed, applicators should wait 30 minutes between passes for optimal foam processing.

Handling and Safety:

Respiratory protection is MANDATORY! Contact BaySystems for a copy of the Model Respiratory Protection Program developed by API or visit their website at www.polyurethane.org. Avoid contact with skin, eyes, and clothing. Open containers carefully, allowing any pressure to be relieved slowly and safely. Wear chemical safety goggles and rubber gloves when handling or working with these materials. In case of eye contact, immediately flush with large amounts of water for at least fifteen minutes, consult a physician immediately. In case of skin contact, wash area with soap and water. Wash clothes before reuse.

Guide formulation	parts by weight	parts by volume
Baymer [®] SHPU-45FS-9	100	100
Desmodur [®] 44V20L	110	100

Foaming data by the hand mixing method at raw material temperature of 21°C

Cream time	5 ± 2	Seconds
Tack free time	15 ± 5	Seconds
Free Rise Density	30 ± 1	kg/m ³
Applied density	approx. 43-47	kg/m ³

Typical properties to be achieved under recommended application parameters:

Density	approx. 43-47 kg/m ³
Compressive strength	> 100 kPa
Fire rating (DIN4102-1)	B2
Water absorption	< 1 %
Thermal conductivity (ASTM C518)	≤ 0.024 W/Km
Working Temperature Range	-40 to 100°C

Fire properties according to DIN 4102-1 have been tested on lab samples in-house, external certification is available on request.

The methods described in this publication for testing the fire performance of polyurethane and the results quoted do not permit direct conclusions to be drawn regarding every possible fire risk there may be under service conditions

Furthermore, this does not release the producer of the finished parts from his obligation to carry out suitable tests on his end product with respect to fire performance and/or fire risk in order to guarantee conformity with the required fire safety standard.