

CARBOFEN® 5055

Asphalt Emulsifier

PRODUCT DESCRIPTION

Carbofen 5055 is a thick, viscous solution of a compound resin dissolved in water. It is derived from the synthesis of naturally occurring polyphenol resins saponified with natural resin acids, which are specially processed resulting in a product with excellent properties as an air entraining agent and asphalt emulsifier.

SPECIFICATIONS

No volatiles (%), ASTM D-1259	54 – 56
pH (in solution at 2%), ASTM E-70	10.5 – 11.5
Density at 25°C (g/m ³), ASTM D-1963	1.10 – 1.20
Free Alkali (mg NaOH/g), EQP	40 – 50

ADVANTAGES OF CARBOFEN 5055

- Neutralization of the resin is not required;
- Easier handling for emulsion;
- Better chemical resistance to the sulfate;
- Excellent solubility in water.

SOLUBILITY

Soluble in water.

PROCEDURE

Fill tank soap with 50% of the water to be used (see the Table 1) and bring water temperature up to 85 – 90oC (185 – 195oF). In a separate vessel, heat the Carbofen 5055 to 60oC (140oF) to allow it to flow easy (this step is not necessary if viscosity of Carbofen 5055 is low enough that the material may be easily poured). Slowly add the Carbofen 5055 to the heated water with constant stirring over 30 to 45 minutes. Add the balance of the required water (it is not necessary to heat the remaining). If desired you may wash the drum out with some of the balance water to clean it: adding this water to the soap tank with the other ingredients.

Important: Check pH of soap solution. If pH different than 11.5 – 12 adjust using little caustic soda or emulsion failure will occur.

Table 1: Formulation for a Carbofen 5055 Solution.

Product	Weight %
Carbofen 5055	1.85 – 6.50%
Water	Balance to 100%

Heat the emulsion base asphalt up to 130-140oC (270-285oF) and recirculate. Heat the Carbofen 5055 solution to 40-50oC (104-125oF) and recirculate. Follow the plant operation instructions.

Following is shown the range of the formulation ingredients, the exact values of which will depend on the type of emulsion being



Table 2: Formulation for a Carbofen 5055 Solution.

Product	Weight %
Asphalt	47 – 70 %
Solution of Carbofen 5055	53 – 30 %

Note: The exact value will depend on the application and the source of asphalt being used. The temperatures of the asphalt and soap solution may be varied beyond the limits shown as long as the temperature of the finished emulsion is at least 5o C (9o F) below the boiling point of water at the altitude at which the emulsion is produced.

The temperature of the emulsion exiting the mill may be calculated by the following formula:

PA= % asphalt;

TA= temperature of the asphalt;

TS= temperature of the solution;

TE= temperature of the emulsion;

And assuming that the specific heats of the asphalt and soap solution are 0.5 and 1 respectively:

$$T_E = \frac{T_A \cdot P_A \cdot 0.5 + T_S \cdot (100 - P_A)}{(100 - P_A) + P_A \cdot 0.5}$$

IMPORTANT

Laboratory tests have been performed to obtain the information contained in this data sheet. We recommend that you perform your own tests in order to determine the suitability of the product for your particular purpose.

In the emulsification stage the kind of equipment is very important for success: a mixing tank followed by a colloidal mill that allows continuous and simultaneous feeding of neutralized solution and molten asphalt. A colloidal mill spins quickly in order to reduce the emulsion into minuscule colloid particles. The type of equipment and the excess of alkali will determine the dimension of the particles and avoid dispersed particle recombination.

The emulsion should be unloaded at 80oC (176oF). If temperature of discharge is higher the particles will combine causing partial separation of the emulsion. Dispersion by aeration should be avoided as it may cause foaming.

PACKAGING

Metal drums of 220kg – 485lb.

PRODUCT INFORMATION AND SAFETY

Read our Material Safety Data Sheet (MSDS).