

# CARBOFEN® 5055

## Asphalt Emulsifier

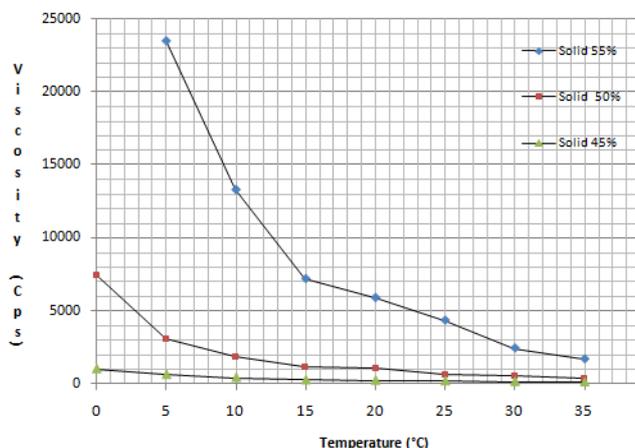
### PRODUCT DESCRIPTION

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 anionic emulsifier. Carbofen 5055's chemical composition and physical properties make it ideal for an asphalt emulsifier in paving.

### SPECIFICATIONS

No volatiles (%), ASTM D-1259	49 – 56
pH (in solution at 2%), ASTM E-70	11 – 12
Density at 25°C (g/m <sup>3</sup> ), ASTM D-1963	1.10 – 1.20
Free Alkali (mg NaOH/g), EQP	90 – 110

The viscosity of Carbofen 5055 may change with temperature and solid content, as shown in the guideline chart below:



### ADVANTAGES OF CARBOFEN 5055 AS AN ASPHALT EMULSIFIER:

- Neutralization of the resin is not required;
- Better resistance to sulfate and chloride;
- Excellent solubility in water;
- Easier handling for emulsion, since it can be diluted without necessarily being heated.

### DIRECTIONS FOR USE:

Carbofen 5055 is concentrated at approximately 50% solids and for use, we recommend it be diluted in a water solution as exemplified in Table 1.



**Table 1:** Formulation for a Carbofen 5055 Solution

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

First, load a tank with 60% of the total amount of water to be used in this process. Then, slowly add Carbofen 5055 and stir until a homogeneous mixture is obtained. Once all of the product has been mixed with water in the tank, add the remaining 40% of water set aside and stir. It is not necessary to heat the water to make the diluted solution.

**Important:** Once the Carbofen 5055 Solution is ready, check the pH of the soap solution. If pH is different than 11.5 – 12, adjust using caustic soda as necessary.

Now that the Carbofen 5055 Solution is ready, it can be added into the asphalt mix. Below is Table 2, displaying the range of formulation ingredients. However, the exact quantities for a successful emulsified asphalt will depend on the type of emulsion being prepared and the source of the asphalt.

**Table 2:** Formulation for an Anionic Emulsified Asphalt using the Carbofen 5055 Solution

Product	Weight (%)
Asphalt	47.0 – 70.0
Solution of Carbofen 5055	53.0 – 30.0

Next, the emulsion base asphalt should be heated up to 130-140°C (270-285°F) and recirculated. In a separate tank, Carbofen 5055 Solution should be heated to 40-50°C (104-125°F) and recirculated. Lastly, follow plant operation instructions when adding Carbofen 5055 into the asphalt mix.

**Important:** The suggested temperatures of the asphalt and soap solution may vary beyond the limits shown above. However, as long as the temperature of the finished emulsion is at least 5°C (9°F) below the boiling point of water at the altitude at which the emulsion is produced, the mixing process should be a success.

**MORE INFORMATION:**

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;

Assuming 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 TO NOTE:**

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

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 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 80°C (176°F). 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.

**SOLUBILITY**

Soluble in water.

**PACKAGING**

- Plastic IBC totes of 330 gallons (1,249.19 L)
- Metal drums of 200 kilograms (440.92 lbs)

**PRODUCT INFORMATION AND SAFETY**

Please read our Safety Data Sheet (SDS) and our Material Safety Data Sheet (MSDS) for detailed information.



*Carbofen 5055 delivery to you in a concentration of approximately 50%*

*Note: The information given here is valid at the time of publication and Polytrade reserves the right to amend any without notice. We try our best to keep our records up to date, but if you want the latest information, contact one of our agents. Also, the data and suggestions regarding this product are given in good faith, but without guarantee, since the ultimate use of our products is beyond our control.*