SP-6700

Description

SP-6700 is a thermoplastic, novolak resin used for reinforcing rubber goods. It does not contain hexamethylenetetramine (hexa) and is the base resin used in the manufacture of SP-6600. It is used to eliminate scorch tendencies in high-temperature mills or Banbury mixing.

General Product Data

Product Specifications:

Softening Point, Ball & Ring, (°C)	90.0-100.0

Typical Properties:

Specific Gravity	1.16
Physical Form	Flake

Solubility:
SP-6700 is soluble in alcohols, ketones and esters.

Application

SP-6700 is produced for those high-temperature compounding cycles where the early presence of hexa could result in scorching. In Banbury operations, it is often more desirable to add hexa to the stock on the sheet off mill. The quantity of hexa added is dependent on processing conditions and the physical properties desired in the product. With eight percent hexa (the concentration used in the preparation of SP-6600), SP-6700 cures rapidly to a heat-resistant, chemically inert product. Eight percent hexa is typically used with nitrile stocks. With three to five percent hexa, SP-6700 Resin cures to a semi-flexible product; the cure rate being somewhat slower than that obtained with SP-6600 Resin. The three to five percent hexa loading is usually used with neoprene stocks. During rubber compounding cycles, hexa should be added as the last compounding ingredient, and should be added at the end of the mixing cycle. Typical compounding cycles using SP-6700 and hexa in a nitrile stock are as follows:

A. Mill Mixing

Break down the nitrile rubber on a cold, tight mill for five to ten minutes prior to mixing. Band it on the slow roll and add the zinc oxide and sulfur. Cut and blend with cuts three-fourths of the way across the roll to give uniform mixing. Add the SP-6700, cut and blend. The stock temperature should be high enough to flux the resin. Add half of the loading pigment and disperse. Add the other half of the loading pigment, cut and blend. Accelerators, organic acid activators, and the hexa are added in that order. The batch is then cut, blended, and refined until it is of uniform composition.

Banbury Mixing

Charge the Banbury with rubber and masticate with the ram down for one to three minutes in order to break the rubber down. Add sulfur or a sulfur masterbatch and the zinc oxide. Add the SP-6700 and then the pigments in one or more increments. Ram pressure should be applied after each increment. The accelerator and hexa are added immediately prior to dumping the batch on the mill. Occasionally, if dump temperatures are too high, it may be necessary to add the hexa on the mill as the stock is sheeted off. For the best possible dispersion, re-mill the batch on a cold, tight mill after a recovery period of at least 16 hours at room temperature.

Suggested Formulation – Shoe Sole Stock

	Parts (by weight)
Hycar 1002[1]	100.0
SP-6700 Resin	35.00
Zinc Oxide	5.00
Sulfur	1.75
Hard Clay	100.00
SP-25 Resin	10.00
Benzothiazol Disulfide	1.50
Stearic Acid	1.50
Paraffin Wax	0.50
Hexamine	Up to 3.00

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Storage And Shelf Life

SP-6700 should be stored where temperatures do not exceed 86 ºF (30 °C) for long periods of time. For best results, it is recommended that this product be used within 1 year of manufacture date. As with all phenolic resins, SP-6700 will become darker with age. Pallets should never be stored double stacked.

Note: Resins of this type are known to agglomerate or sinter during storage. This condition does not affect the performance of the resin in its normal application and is not considered justification for rejection or return.

Safety And Regulatory Information

For a current Safety Data Sheet (SDS) or other regulatory information, contact SI Group, Inc. at productinfo@siigroup.com.