



Casting Systems

Description

HSC 7550 is modified epoxy resin to serve electrical casting application. HSC 8570 is modified liquid anhydride hardener. HSC 6510 is low viscosity polyglcol flexibilizer. HSC 5510 is liquid amine accelerator. The liquid hot curing system goes for castings with good electrical and mechanical properties.

Application and Key Properties

Indoor electrical insulators for medium/ high voltage like post insulators and bushings, Instrument transformers, Dry type distribution transformers, Switch gears

The system offers superior mechanical, electrical and thermal endurance properties along with good resistance to atmospheric conditions.

Product Specifications

Resin HSC 7550

Properties	Units	Reference Standard	Value
Appearance	Visual	HTP-1	Clear Liquid
Viscosity @ 25°C	mPas	ASTM D2196	9000-13000
Color	Gardener	ASTM D1544	Max 1
EEW	g/ Eq	ASTM D1652-97	180-190

Hardener HSC 8570

Properties	Units	Reference Standard	Value
Appearance	Visual	HTP-1	Clear Liquid
Viscosity @ 25°C	mPas	ASTM D2196	150-200
Color	Gardener	ASTM D1544	Max 8

Product Specifications (Contd.)

Flexibilizer HSC 6510

Properties	Units	Reference Standard	Value
Appearance	Visual	HTP-1	Clear Liquid
Viscosity @ 25°C	mPas	ASTM D2196	50-100
Density	g/cc	HTP-6	1.02-1.04

Accelerator HSC 5510

Properties	Units	Reference Standard	Value
Appearance	Visual	HTP-1	Clear Liquid
Viscosity @ 25°C	mPas	ASTM D2196	Max 20
Density	g/cc	HTP-6	0.9-1.00

Product Performance Data

Properties	Units	Reference Standard	Typical Value
Gel time, mix viscosity & curing schedule			
HSC 7550/HSC 8570/HSC 6510/ HSC 5510/ Silica- 100/100/10/1/400			
Mix Viscosity @ 80°C	mPas	ASTM D2196	2000
Gel time @ 80°C	Min.	HTP-17	19
Cure Schedule	NA	NA	6-8h 80°C + 10-12h 130°C

Mechanical Properties

Tensile Strength	MPa	ASTM D638	70
Elongation at Break	%	ASTM D638	1
Tensile Modulus	MPa	ASTM D638	12500
Flexural Strength	MPa	ASTM D790	125
Flexural Modulus	MPa	ASTM D790	12000
Flexural Strain	MPa	ASTM D790	1.2
Compressive Strength	MPa	ASTM D695	135
Impact Strength	KJ/mm ²	ISO 179	10

Electrical Properties

Electric Strength	kV/mm	IEC 60243-1	18
Tan δ , 50Hz, 25°C	%	IEC 60250	2
Volume Resistivity	Ω cm	IEC 60093	10 ¹⁵
Arc Resistance	sec	IEC 61621	190
Tracking Resistance	sec	IEC 61621	600

Thermal and General Properties

Glass Transition Temperature	°C	DSC	90
HDT	°C	ISO R/75	85
Water Absorption, 24h @ 25°C	% weight	HTP-53	0.2

HTP: HSCL Testing Procedure

Processing and Storage

Mixing

Casting resin system generally needs long working time. All components need to be mixed properly at room temperature or slightly higher temperature, vacuum may be used to assist mixing. Ensure proper filler wetting takes place which will result in right processing viscosity needed for application. The proper mixing will ensure better flow properties thus reducing tendency to shrink which enhances mechanical, thermal properties and improvement in partial discharge behaviour for high voltage applications.

For plants that require a resin and hardener feed can mix resin, flexibilizer and filler on one side (Part A) while hardener and accelerator on other side (Part B) and can store at slightly elevated temperatures of 50°C and above for 3-5 days. Prolonged storage of resin along with fillers causes precipitation. Hence it is advisable to mix fillers before preparation. Materials to be thoroughly mixed prior usage including bottom of the container. Uneven mixing will affect the final cured properties.

Filler need to dried for removal of moisture prior to use. We recommend silanized silica which assist in proper bonding of organic material (epoxy) with inorganic part (silica).

Air release agents/ Defoamer can be used if mixing generates exorbitant air bubbles.

Mixing time depend on temperature, mixing equipment and quantity taken. Vacuum required for application should be between 0.5bar to 5bar.

Curing

Once all the components are mixed, they need to transferred in pre-heated moulds, they are cured at specified temperature and post cured for achievement of properties and subsequently cooled for specified number of hours before demoulding.

We recommend use of a good mould release agent which should be sprayed or brushed properly on mould before transferring of epoxy material which assist in proper demoulding.

Mould temperature

Conventional vacuum casting 80 - 100°C

Demoulding times (depending on mould temperature and casting volume)

Conventional vacuum casting 6 - 12h

Cure conditions (minimal post-cure)

Conventional Vacuum Casting

6h at 80°C + 10h at 130°C or
6h at 80°C + 6h at 140°C

Castings of larger volume need to be done carefully at around 80°C. This will help in control of exotherm. High peak exotherm need to be avoided as they tend to crack a part. Peak exotherm control agents can be used for applications where higher exotherms are expected.

Storage Conditions

Components should be stored away from light & heat. Partly emptied containers should be tightly closed immediately after use to avoid exposure to light. For information on waste disposal and hazardous products of decomposition in the event of a fire, refer to the Material Safety Data Sheets (MSDS) for these particular products. The shelf life is 12 months for all components.

Disclaimer

All recommendations for use of our products, whether given by us in writing, verbally or to be implied from results of tests carried out by us are based on the current state of our knowledge. Notwithstanding any such recommendations the Buyer shall remain responsible for satisfying himself that the products as supplied by us are suitable for his intended process or purpose. Since we cannot control the application, use or processing of the products, we cannot accept responsibility. Therefore, the Buyer shall ensure that the intended use of the products will not infringe any third party's intellectual property rights. We warrant that our products are free from defects in accordance with and subject to our general conditions of supply.

For more information, please contact
Hindusthan Speciality Chemicals Limited
Kanchenjunga, (7th Floor) 18, Barakhamba Road, New Delhi – 110001
Phone: 011-23310001-05
Email- sales.hscl@thehindusthangroup.co.in
Website: www.hindusthanspeciality.com
