

Introduction

NAD-1103 is an orthophthalic, medium viscosity unsaturated polyester resin. It is supplied as a solution dissolved in monomeric styrene.

Applications: NAD-1103 is designed for pipes and fittings and tanks.

Typical Properties Of Liquid Resin

Properties	Unit	value	Test Method
Color	Gardner	<2	ASTM D 1544
Appearance	NA	Clear, Yellowish	NA
Acid Value	mgr KOH/gr Resin	18-25	ISO 2114
Viscosity	mPa.s(cps), @25°C	360-420	ISO 2555
Density	g/cm	1.11-1.13	ASTM D 1475
Solid Content	Wt%	60-65	ISO 3251
Gel Time	Min, @25°C	10-20	ISO 2535
Curing Time	Min, @25°C	13-25	ISO 2535
Peak Exothermic Temperature	°C, @25°C	180±20	ISO 2535
A	°C, @25°C	12-30	ISO 2535
B	°C, @25°C	20-40	ISO 2535
b/a	°C, @25°C	<1.8	ISO 2535

Typical Mechanical Properties of Clear Cured Casting

Properties	Unit	value	Test Method
Tensile Strength	MPa	70±5	ISO 527-2
Tensile Modulus	GPa	3.5±0.5	ISO 527-2
Elongation at Break	%	>3	ISO 527-2
Flexural Strength	Mpa	110±10	ISO 178
Flexural Modulus	Gpa	3.5±0.5	ISO 178
Heat Distortion Temperature	°C	70-80	ISO 75-2
Barcol Hardness	-	40-45	ASTM D2583
Linear Shrinkage	%	<3	ASTM D2566
Water Absorption	%	<0.4	ISO 62

Formulation for Room Temperature Curing

MATERIAL NAME	PROPERTIES	QUANTITY
MEKP A60	CATALYST	1.5
COBAL OCTOATE 10%	ACCELERATOR	0.1

Attention: Peroxide Catalysts are highly reactive and may decompose with explosive violence, or cause fires, if they come into contact with flammable materials, metals or accelerators. For this reason they must never be stored in metal containers or be mixed directly with accelerators.

Post Curing



For most applications, where the moulded product will be used at ambient temperatures, satisfactory laminates can be produced without post curing at elevated temperatures, provided workshop temperatures are not below 20°C.

For more critical applications, where optimum properties are required, or where the service temperature of the moulding will be above ambient temperature, post curing at elevated temperature is recommended.

The optimum temperature for NAD-1103 is 80°C. After release from the mould, laminates should be allowed to mature for 24 hours at a workshop temperature of not less than 20°C. before being post cured. Place the part in an oven, suitably supported to prevent warping, and increase the temperature from ambient to 80°C in 10°C stages.

Leave the moulding at 80°C for three hours, and then switch the oven off. Allow the moulding to cool slowly in the oven. Post curing is most effective if it is carried out immediately after the 24-hour maturing period. Regarding HDT test, leave the molding at 105°C for 5 hours.

Storage Conditions

NAD-1103 is a product sensitive to temperature, light & oxidation. Hence should be stored indoors in dry place at a temperature between 5 and 25°C. Keep always in the original, unopened and undamaged containers. Avoid keeping material exposed to sunlight.

NAD-1103 should be stored in the dark in suitable closed containers. It is recommended that the storage temperature should be less than 20°C here practical, but should not exceed 30°C. Ideally, containers should be opened only immediately prior to use. Where they have to be stored outside, it is recommended that drums be kept in a horizontal position to avoid the possible ingress of water.

Packaging

NAD-1103 is supplied in 200 kg drums, polyethylene tanks, IBC and 12 ton tanks.



Shelf Time

Minimum 4 months after producing

Health and Safety

Please see the applicable Material Safety Data Sheets, depending on the curing system used.



Attention: Unsaturated polyester resin, NAD-1103, a product produced by Koolancel Company, has a product type approval certificate for the construction of all marine floats and structures with the following specifications.

All information on this data sheet is based on laboratory testing and is not intended for design purposes.