

ADDupol™ C002-UTA

ISOPHTHALIC LAMINATING RESIN
UNWAXED

CHARACTERISTICS:

C002-UTA is a rigid, medium-reactive isophthalic unsaturated polyester resin. It is a pre-accelerated, thixotropic resin which is intended for use in Fibre Glass Reinforced applications where good water and chemical resistance is required together with excellent weathering and good retention of mechanical properties.

C002-UTA gives good glass fibre wet out with minimal drainage. This product is especially suited for high performance areas such as marine application, storage tanks, pool fabrication and pool linings.

There are many factors that influence the chemical resistance of GRP structures made with **C002-UTA**. In order to ensure the best long term performance from your GRP laminate, the following points should be carefully considered. :-

- quality of laminate construction such as air entrapment
- extent of final cure
- effect of filler addition
- type and level of catalyst
- choice of reinforcement
- glass type and content
- design configuration

LIQUID PROPERTIES:

PROPERTY		SPECIFICATION
Liquid appearance		Hazy light blue, no contamination
Viscosity (Brookfield, @ 25 °C)	@100rpm	280 - 420 centipoises *190 – 210 centipoises
Thixotropic index		1.1 - 1.4
Acid value		16 – 32 mg KOH/g
Gel time @ 25 C using 2% MEKP-50 *Gelttime @ 25 C using 1.5% MEKP-50 (based on mass of resin used)		12 – 18 minutes 18 – 22 minutes
Non-volatile content		56 - 60%
Density @25 C		1.10 - 1.12 g/cm ³
Shelf Life at ambient temperature		6 months

GELTIME CHARACTERISTICS:

C002-UTA is specially formulated to cure at room temperature using MEKP- 50. Addition levels should be 2% by weight to ensure that satisfactory cure is achieved at normal workshop temperature (20 - 25 C). Catalyst levels of less than 1% or greater than 3% should be avoided. Working temperatures below 15 C will affect the final cure of the product and is therefore not recommended. Typical gel times at different temperatures and catalyst levels can be obtained as a guide from the table below

Product temperature in C	Gel times in minutes at different catalyst levels				
	1.0%	1.5%	2.0%	2.5%	3.0%
15	77	52	35	20	16
20	54	32	23	15	11
25	33	22	15	9	7
30	25	16	11	6	5
35	16	10	7	4	3

PHYSICAL PROPERTIES:
A) UNFILLED CASTING

PROPERTY	TYPICAL VALUE
Barcol hardness (BS2782-10)	53 bhu
Water absorption (ISO 62-2)	45mg
Temperature of deflection (BS EN ISO 75-2)	105 C
Elongation at break (ISO 527-2)	2,5%

B) FULLY CURED CHOPPED STRAND MAT LAMINATE

PROPERTY		TYPICAL VALUE
Tensile strength		90MPa
Flexural strength	molded surface	200MPa
	reverse surface	195MPa
Barcol hardness		53bhu
Glass content of test sample		33%
Modulus in flexure	molded surface	7700MPa
	reverse surface	7600MPa

A) RECOMMENDED POST CURING SCHEDULE FOR LAMINATES:

TEMPERATURE	POST CURE PERIOD
80 °C	2 hours
70 °C	3 hours
60 °C	4 hours
50 °C	5 hours
40 °C	6 hours

Post curing should preferably take the form of dry electrical heat or heated blower fans, which should cure all areas of the complete moulding simultaneously. Care should be taken to avoid excessive localised heating and irregular post cure from area to area on a mould, and the maximum temperature of 80 °C should not be exceeded.

STORAGE CONDITIONS:

C002-UTA should be stored under cool conditions (20 – 25 °C) in closed opaque containers. Exposure to sunlight and/or high temperature should be avoided since this can lead to premature gellation even in the absence of peroxide catalyst. The storage shelf life of this product under ideal conditions is a minimum of six months from the date of manufacture.

First in first out stock rotation must be adhered to in order to obtain optimum performance from this product. If screw top drums are stored outside for any length of time, they should be kept in a horizontal position in order to avoid any ingress of water.

**ADD RESINS BRANCHES AT:
 JOHANNESBURG / DURBAN / CAPE TOWN**

POLYESTER SAFETY INFORMATION

All sales of products supplied by ADD Resins (Pty) Ltd and described herein are made solely on condition that our customers comply with applicable health and safety laws, regulations and orders relating to the safe handling of our products in the workplace. Before using, read the following information and both the product label and Material Safety Data Sheet pertaining to each product.

Most polyester products contain styrene. Styrene can cause eye, skin and respiratory tract irritation. Avoid contact with eyes, skin and clothing. Impermeable gloves, safety eyewear and protective clothing should be worn during use to avoid skin and eye contact. Wash personal protective equipment thoroughly after use.

Styrene is a solvent and may be harmful if inhaled. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Extended exposure to styrene at concentrations above the recommended exposure limits may cause central nervous system depression causing dizziness, headaches or nausea and if overexposure is continued indefinitely, loss of consciousness, liver and kidney damage.

Do not breathe or ingest vapour, spray mists and dusts caused by applying, sanding, grinding and sawing polyester products. Wear an appropriate OSHA approved, properly fitted respirator during application and use of these products until vapours, mists and dusts are exhausted, unless air monitoring demonstrates vapours, mists and dusts are below applicable exposure limits. Follow respirator manufacturer's directions for respirator use.

The International Agency for Research on Cancer (IARC) has reclassified styrene as Group 2B "possibly carcinogenic to humans". This new classification is not based on new health data relating to either humans or animals, but on a change in the IARC classification system. The Styrene Information and Research Centre does not agree with the reclassification and has published the following statement: Recently published studies tracing 50 000 workers exposed to high occupational levels of styrene over a period of 45 years showed no association between styrene and cancer, no increase in cancer among styrene workers (as opposed to the average among all workers), and no increase in mortality related to styrene.

Styrene is classified by OSHA and the Department of Transport as a flammable liquid. Flammable polyester products should be kept away from heat, sparks and flame. Lighting and other electrical systems in the workplace should be vapour-proof and protected from breakage.

Vapours from styrene may cause flash fire. Styrene vapours are heavier than air and may concentrate in the lower levels of moulds and the work area. General clean air dilution or local exhaust ventilation should be provided in volume and pattern to keep vapours well below the lower explosion limit and all air contaminants (vapour, mists, dusts) below the current permissible exposure limits in the mixing, application, curing and repair areas.

Some polyester products may contain additional hazardous ingredients. To determine the hazardous ingredients present, their applicable exposure limits and other safety information, read the Material Safety Data Sheet for each product (identified by product code) before using.

FIRST AID: In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If affected by inhalation of vapours or spray mist, remove to fresh air. If swallowed, get medical attention.

Polyester products have at least two components that must be mixed before use. Any mixture of components will have hazards of all components. Before opening the packages, read all warning labels. Observe all precautions.

Keep polyester containers closed when not in use. In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations. Emptied containers may retain hazardous residue. Do not cut, puncture or weld on or near these containers. Follow container label warnings until containers are thoroughly cleaned or destroyed.

FOR INDUSTRIAL USE AND PROFESSIONAL APPLICATION ONLY. KEEP OUT OF REACH OF CHILDREN.

DISCLAIMER AND LIMITATION OF LIABILITY

The products sold hereunder shall meet Seller's applicable specifications at the time of shipment. Seller's specifications may be subject to change at any time without notice to Buyer. Buyer must give Seller notice in writing of any alleged defect covered by this warranty (together with all identifying details, including the product code(s), description and date of purchase) within thirty (30) days of the date of shipment of the product or prior to the expiration of the shipment's quality life, whichever occurs first. The warranty described herein shall be in lieu of any other warranty, express or implied, including but not limited to, any implied warranty or merchantability or fitness for a particular purpose. There are no warranties that extend beyond the description on the face hereof.

The Buyer's sole and exclusive remedy against Seller shall be for the replacement of the product or refund of the purchase price in the event that a defective condition of the product should be found to exist by Seller. No other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available to the Buyer.

The sole purpose of this exclusive remedy shall be to provide Buyer with replacement of the product or refund of the purchase price of the product if any defect in material or workmanship is found to exist. This exclusive remedy shall not be deemed to have failed its essential purpose so long as Seller is willing and able to replace the defective products or refund the purchase price.

Final determination of the suitability of the material for the use contemplated, the manner of use and whether the suggested use infringes any patents is the sole responsibility of the Buyer.