

## Technical Information

# POLYLITE 2035PASLSE

PDS118/REV02

refer to MSDS 2035PASLSE

**FAST WET-OUT, LOW STYRENE EMISSION  
GENERAL- PURPOSE, POLYESTER RESIN  
LLOYDS APPROVED**

### DESCRIPTION

**POLYLITE 2035PASLSE** is a rigid, medium reactivity, thixotropic, low styrene emission orthophthalic unsaturated polyester resin with a blue catalyst colour change indicator. **POLYLITE 2035PASLSE** is preaccelerated and of medium cure rate. The resin has a built in accelerator system that gives medium long geltime and good reactivity in medium thick laminates (3-8mm) layed wet in wet without creating too high laminate peak exotherm.

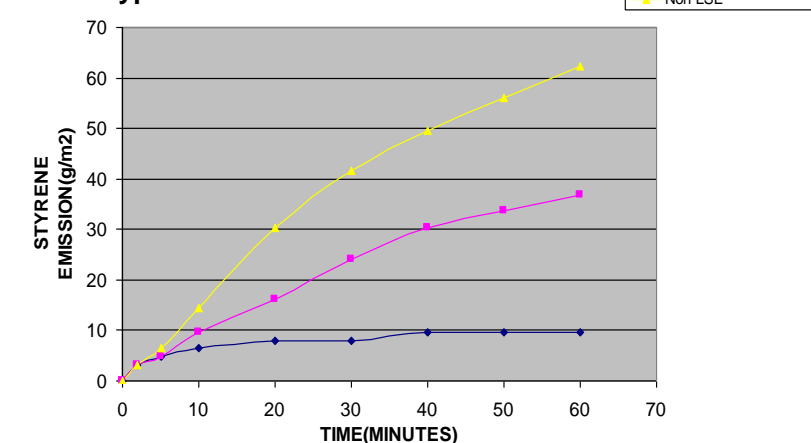
**POLYLITE 2035PASLSE** contains special additives which improve the working environment during and after application due to substantially reduced styrene evaporation.

**POLYLITE 2035PASLSE** is designed for application by hand lay-up and spray-up and is suitable for all general purpose composite applications.

When a laminate is built up in stages with intermediate curing, each operation should be finished off with a normal resin to glass ratio. Any surface of a cured laminate having an excess of resin, must be abraided before laminating is continued. With a normal resin to glass ratio of the laminate surface the intervals between each operation must not exceed 48hours without abrasion (Det Norsk Veritas).

Prolonged storage or unfavourable storage conditons may cause some separation, hence agitation of the resin before use is recommended.

**STYRENE EMISSION OF Polylite 2035PASLSE  
vs Typical LSE AND Non LSE RESINS**



The diagram is based on laboratory measurements hence it does not give a representative picture of a production situation. However, practical application has shown a considerable improvement of the working environment by changing from conventional polyester resin to Polylite LSE-resin.

The information herein is to assist customers in determining whether our products are suitable for their applications. Our products are intended for sale to industrial and commercial customers. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute any other warranty expressed or implied, including any warranty of merchantability or fitness, nor is protection from any law or patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is replacement of our materials, and in no event shall we be liable for special, incidental, or consequential damages. Our standard conditions of contract will apply to all sales

FEATURES	BENEFITS
Low styrene emission	Improves safety by reducing styrene levels in the work place
Lloyds approved	Meets International Quality standards
Excellent interlaminar adhesion	Delays of up to 48h between consecutive layers
Excellent wet out of glass fibres	Easy to roll out
Thixotropic	Minimal drainage
Non air-inhibited – contains wax	Cures to a tack-free finish
Specially promoted	Predictable geltime and cure rate
Blue colour change mechanism	Confirms catalyst addition
Heat Distortion Temperature above 80°C	Good heat resistance

**OTHER VERSIONS**

POLYLITE 2035PAWLSE	Shorter geltime version for winter conditions
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**TYPICAL  
LIQUID  
PROPERTIES**

PROPERTY	SPECIFICATION	NCS TEST METHOD
Relative density 25°/25°C	1,09 - 1,11	14
Viscosity at 25°C, cps	2000 - 3000	5.2
Viscosity at 25°C, cps (Cone and Plate)	200 - 260	
Acid value, mg KOH/g	19.5 – 26	13
Volatile content, %	39 - 43	7
Geltime at 25°C, using 1 phr* BUTANOX M50, minutes	28 - 39	8
Liquid appearance	Opaque blue	2
Stability in the dark at 25°C, months	6 minimum	4.1
<b>*phr = parts per hundred resin, by mass.</b>		

**CURING  
CHARACTERISTICS**

**POLYLITE 2035PASLSE** needs only the addition of catalyst to start the curing reaction. The resin must be allowed to attain workshop temperature (23°C) before being formulated for use. The correct amount of catalyst is therefore added and thoroughly stirred into the resin shortly before use. Low styrene emission resin **POLYLITE 2035PASLSE** is designed to reduce the emissions of styrene monomer during the period following completion of lamination of GRP products, and during the curing of laminates on their moulds. The emissions of styrene monomer will not be reduced during spraying of the resin, or during mixing of resins, or rolling of laminates. The ambient temperature and the amount of catalyst control the geltime of the resin formulation. This can be approximately determined from the table below which shows the geltime of 100 parts by mass of **POLYLITE 2035PASLSE**, containing 1, 1.5 and 2 phr BUTANOX M50.

**GELTIME CHART**

	<b>Geltime on 100g casting at the given temperature.</b>				
<b>Catalyst level (phr)</b>	15°C	20°C	25°C	30°C	35°C
1 phr Butanox M50	75	45	33	20	14
1.5 phr Butanox M50	41	26	18	14	10
2 phr Butanox M50	36	21	13	11	8

Curing should not be carried out at temperatures below 15°C. Ideally, the catalyst level should range between 1 and 2 phr.

**POST-CURING**

Many satisfactory laminates can be made from **POLYLITE 2035PASLSE** by curing at ambient temperature (but not less than 15°C). When optimum properties and long-term performance are required however, the laminate should be post-cured.

After release from the mould, laminates should be allowed to mature for 24 hours at workshop temperature (23°C). They should then be post-cured for 3 hours at 80°C, although a longer period at a lower temperature will give almost the same result. The post-cure is most effective if it is carried out immediately after the 24 hour maturing period.

**FILLERS**

The addition of fillers to **POLYLITE 2035PASLSE** could affect the low styrene emission performance of the resin. Fillers should be accurately checked for moisture content and effect on geltime and cure rate before use.

**TYPICAL  
PHYSICAL  
PROPERTIES**

<b>Typical Properties of POLYLITE 2035PASLSE (unfilled castings)</b> Prepared, post-cured and tested in accordance with SABS 713-1999, as amended	
Temperature of deflection - under load (1,80 MPa), °C	90
Water absorption:	
a) Increase in mass after 28 days immersion, mg	100
b) Loss in mass after drying, mg	45
Barcol (GYZJ 934-1) hardness	45
Tensile strength, MPa	76
Flexural strength, MPa	84
Flexural modulus, MPa	3 930
Compressive strength, MPa	152

**STORAGE  
AND  
HANDLING**

To ensure maximum stability and maintain optimum resin properties, polyester resins should be stored in closed containers maintained below 25°C and away from heat sources and sunlight. All storage should conform to local fire and building codes. Drum stock should be kept to a reasonable minimum with first-in, first-out stock rotation.

Where bung-in-head containers are stored outside it is recommended that these be stored in a horizontal position to avoid the ingress of water.

**STANDARD  
PACKAGE**

Non-returnable metal drums.

Bulk supplies can be delivered by road tanker.

**MATERIAL  
SAFETY**

A Material Safety Data Sheet is available from your NCS Resins' representative. Make certain that you obtain a copy of this guide to the safe handling of unsaturated polyester resins and resin systems.

<b>WARNING</b>	Care must be taken to avoid direct mixing of any organic peroxide (catalyst) with metal soaps, amine or any other polymerisation accelerator or promoter, as violent decomposition will result!
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**PLEASE READ AND UNDERSTAND THE MATERIAL  
SAFETY DATA SHEET BEFORE WORKING WITH THIS  
PRODUCT**

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