

LAY UP RESINS



Also see laminating rollers [page 107]

Lay Up Resin - Resin 'A'

A pre-accelerated low viscosity polyester resin with rapid hardening characteristics. It combines fast impregnation of reinforcements and fillers with a very short mould release time. Suitable for hand lay or spray applications. It is filled and has a matt finish. Also suitable for hand props and scenic work but it is not flame retardant. Add 2 ml of catalyst to 100 g of resin. Previously Crystic 471PALV.

SPECIFICATION: UN 1866. Pot life at 20°C/12 min. Pot life at 25°C/8 min. Max pigment paste: 10%. Appearance: cloudy mauvish. Barcol hardness: 47. Water absorption: 24 hours at 23°C/18 mg. Tensile strength of resin: 68 MPa. Tensile modulus of resin: MPa 3700. Elongation at break: 2.5%. Specific gravity at 25°C: 1.22. Catalyst: UN 3105.

| | | | | |
|------------------------------|--------|-------|--------|--------|
| Lay Up Resin Crystic 471PALV | code | | 5 kg | |
| | PRO401 | | | £45.00 |
| Catalyst M | code | 100 g | code | 1 kg |
| | PRO422 | £5.34 | PRO425 | £9.16 |



Flame Retardant Lay Up Resin - Crystic 356PA

A pre-accelerated filled polyester resin recommended for the production of opaque flame retardant laminates. The unique properties of Crystic 356PA Resin make it particularly suitable for building larger pieces of scenery and mouldings. With standard gel coats it is classified to BS 476 Part 7 Class 1 and French

M1. It has a 14 minute gel time. Add 2 ml of catalyst per 100 g of resin. SPECIFICATION: UN 1866. Pot life at 20°C/20 min. Pot life at 25°C/12 min. Max pigment paste: 5%. Appearance: pinkish white opaque. Barcol hardness: 56. Water absorption: 24 hours at 23°C/12 mg. Tensile strength of resin: 45 MPa. Tensile modulus of resin: MPa 7400. Elongation at break: 0.7%. Specific gravity at 25°C: 1.62. Catalyst: UN 3105.

| | | | | |
|---------------------------------|--------|-------|--------|---------|
| FR Lay Up Resin - Crystic 356PA | code | | 25 kg | |
| | PRO410 | | | £178.88 |
| Catalyst M | code | 100 g | code | 1 kg |
| | PRO422 | £5.34 | PRO425 | £9.16 |



Marine Grade Resin - Crystic 2.406PA

This is a low styrene resin with good wet out properties. The gel time is approximately 16 minutes. A colour change mechanism is incorporated when the catalyst is added. The colour changes from pale blue to green eventually clearing as the resin cures. Lloyds approved. Catalyst should be added at 1 or 2%.

SPECIFICATION: UN 1866. Pot life at 20°C: 22 min at 1% or 16 min at 2%. Pot life at 25°C: 16 min at 1% or 11 min at 2%. Max pigment paste - certain pigments affect this resin please seek advice. Appearance: pale blue. Barcol hardness: 45. Water absorption 24 hours at 23°C/14 mg. Tensile strength of resin: 54 MPa. Tensile modulus of resin: MPa 3,700. Elongation at break: 1.7%. Specific gravity at 25°C: 1.20. Catalyst: UN 3105.

| | | | | |
|------------------|-----------|-------|--------|---------|
| Crystic 2.8500PA | code | | 25 kg | |
| | PRO2406PA | | | £158.37 |
| Catalyst M | code | 100 g | code | 1 kg |
| | PRO422 | £5.34 | PRO425 | £9.16 |



Working with resins? Why not order a pack of Tough Wipes [page 342]? They quickly remove resin, paints and adhesives from your hands and gently condition the skin.

GELCOATS



Gelcoat - Crystic 65PA This brush-applied gelcoat has excellent weather- and water-resistance with low taint. Moulders choose it over competitively priced products because of its exceptional handling properties in production, good flexibility, good gloss and ease of repair. This gelcoat is also widely used in the marine industry. If used with a flame retardant lay up resin it can comply with BS 476 Part 7. Add 2 ml of catalyst per 100 g of resin. Lloyds approved.

SPECIFICATION: UN 1866. Pot life at 20°C: 15 min. Pot life at 25°C: 9 min. Available to order in various colours. Adding pigment paste may effect the water- and weather-resistance. Appearance: cloudy mauvish. Barcol hardness: 42. Water absorption 24 hours at 23°C/18 mg. Tensile strength of resin: 75 MPa. Tensile modulus of resin: MPa 3,500. Elongation at break: 3%. Specific gravity at 25°C: 1.11. Catalyst: UN 3105.

| | | | | |
|--------------|--------|--------|--------|---------|
| Crystic 65PA | code | 5 kg | code | 25 kg |
| | PRO403 | £53.64 | PRO412 | £177.17 |
| Catalyst M | code | 100 g | code | 1 kg |
| | PRO422 | £5.34 | PRO425 | £9.16 |

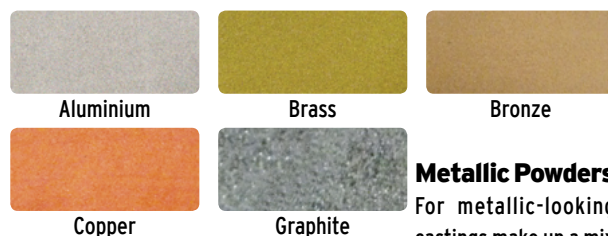
RESIN ADDITIVES



Crystic Pigment Pastes The above resins can be tinted using these pigments. Do not add more than the recommended amount [see the Technical Data of each product]. A

further 22 colours are available but only in 25 kg drums.

| | | | | | |
|------------------------|---------|--------|-------|----------|--------|
| Crystic Pigment Pastes | code | 500 g | code | 500 g | |
| Yellow [contains lead] | PROPIG1 | £12.71 | White | PROPIG2 | £12.23 |
| Green [contains lead] | PROPIG5 | £13.17 | Black | PROPIG3 | £12.23 |
| Brown [contains lead] | PROPIG7 | £12.71 | Blue | PROPIG4 | £13.17 |
| Orange [contains lead] | PROPIG8 | £13.17 | Cream | PROPIG6 | £12.71 |
| Red [contains lead] | PROPIG9 | £14.59 | Grey | PROPIG10 | £12.71 |



Metallic Powders For metallic-looking castings make up a mix

of resin and metallic powder allowing 2 ml of catalyst M per 100 g of resin. The dull casting will need buffing with wire wool and metal polish to bring out the realistic effect [check out the polisher on page 100]. An aged effect can be obtained by adding one part of graphite powder per ten parts of metallic powder. Flints also sell metallic "powders" for making paint but they are not suitable for this application [page 36].

| | | | | | | |
|-------------------|-----------|------------------------|--------|-----------|--------|---------|
| Metallic Powders | code | 200 g | 500 g | code | 2 kg | 5 kg |
| | | max powder resin ratio | | | | |
| Aluminium 1:1 | PRO453 | - | £19.10 | PRO452 | - | £77.39 |
| Brass 5:1 | PRO455 | - | £18.75 | PRO454 | - | £140.00 |
| Bronze 7:1 | PRO451 | - | £19.95 | PRO450 | - | £142.35 |
| Copper 3:1 | PRO457 | - | £19.95 | PRO456 | - | £144.90 |
| Graphite see text | PATGP0200 | £5.13 | | PATGP2400 | £39.95 | - |

CLEAR CASTING RESIN

**Embedding Resin [Clear Casting]**

This embedding resin can be used for making small props and costume jewellery. Items can be embedded in the resin. Moulds can be made from glass [with a release agent] or polythene-lined containers but flexible rubber is not suitable. Add 2 ml of Catalyst M to 100 g of resin.

| Embedding Resin [clear casting] | code | 1 kg | code | 5 kg |
|---------------------------------|--------|--------|--------|--------|
| | PR0404 | £20.21 | PR0405 | £52.31 |
| Catalyst M | code | 100g | code | 1 kg |
| | PR0422 | £5.34 | PR0425 | £9.16 |

REINFORCEMENTS

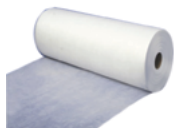
**Chopped Strand Mat 450 g/m²**

[type CTG] This is the most popular weight of chopped strand mat [CSM] suitable for most laminating. Using a fin roller or paddle roller

[page 107] will greatly aid effective wetting out, essential for strong long-lasting laminates. The mat is 965 mm wide and is available by the metre. Also available as a box containing a roll of approx 56 metres which weighs 33 kg. Not suitable for use with Jesmonite because the mat requires solvents to make it pliable.

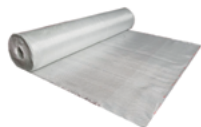
| Chopped Strand Mat | width | code | per m | 56 m+ |
|--------------------|--------|--------|-------|-------|
| | 965 mm | PR0430 | £3.25 | £1.85 |

Also see Chopped Strands [page 102].



Surfacing Tissue [ACM1] The application of surfacing tissue will provide a smoother finish to laminating work.

| Surfacing Tissue [ACM1] | width | code | per m | 250 m+ |
|-------------------------|-------|--------|-------|--------|
| | 1 m | PR0433 | £1.62 | £1.26 |



Woven Roving 600 g/m² Woven roving is used to obtain a higher strength weight ratio than is possible with chopped strand mat [CSM]. Available by the metre or in a roll of approximately 60 metres. Weight of 60 m is 40 kg.

| Woven Roving 600 g/m ² | width | code | per m | 60 m+ |
|-----------------------------------|-------|--------|-------|-------|
| | 1 m | PR0436 | £3.50 | £2.85 |



Glass Tape Reinforces plywood joints when used with SP 106 Epoxy Resin [page 105].

| Glass Tape [50 m] | width | code | per 50 m |
|-------------------|-------|------------|----------|
| | 50 mm | PROME0020C | £12.90 |



Paper Rope To stiffen large areas of glass reinforced fibre. Paper rope can also be used to act as formers for laminated ribs on the rear of the structure. 1" diameter though other sizes of paper rope are available [page 81].

| Paper Rope | code | per m | code | 100 m coil |
|------------------|--------|-------|---------|------------|
| 25.5 mm diameter | PR0123 | £0.97 | PR0123D | £74.90 |

FILLER POWDERS



Glass Bubbles These hollow spheres serve to increase the volume and decrease the density of any resin system. They are used in adhesives and to make easily sanded filling and fairing compounds. In the theatre industry, they are often added to textures such as Idenden to reduce the weight. Suitable for use below the waterline.

| Glass Bubbles | approx volume | code | price |
|---------------|---------------|------------|---------|
| 0.3 kg | 3 L | FILA230001 | £15.98 |
| 5 kg | 50 L | FILA230003 | £145.89 |

Fillite Fillite is a glass hard, inert, hollow silicate sphere. Fillite is primarily used to reduce the weight of resins and moulding materials. The spherical nature of the material ensures the lowest quantity of binder is needed to wet out the material.

SPECIFICATION: Average particle density: 600 - 850 g/L. Average bulk density: 350 - 450 g/L. Packing factor: 60% - 65%. Appearance: Grey powder. Hardness: Mohs scale 5. Average wall thickness: 5% - 10%. Melting temperature: 1200° - 1350°C. Thermal conductivity: 0.11 Wm-1K-1. Loss on ignition: 2% maximum. Surface moisture: 0.3% maximum. Crush strength: 105 - 210 kg/cm² [1,500 - 3,000 psi].

- ✓ Lightweight - reduces the weight of your material
- ✓ Spherical - free-flowing
- ✓ Inert
- ✓ Improves flame retardance

| Fillite | approx volume | code | price |
|---------|---------------|----------|--------|
| 20 kg | 50 L | PRO500SG | £40.95 |



SP Micro Fibres These are very fine wood cellulose fibres commonly used to create structural adhesives for bonding both wood and GRP. Because any low viscosity resin system is readily absorbed into a porous surface such as wood, an unfilled adhesive may tend to give a "dry joint". With their absorbent properties, micro fibres can retain a significant quantity of adhesive within a joint and limit resin absorption into the surrounding surface, thus ensuring an adequate resin supply for adhesion. Where the strongest bond is required e.g. timber scarf joints, microfibrils should always be used in preference to hollow sphere types of filler. For bonding parallel to the grain with lower density, lower strength timbers, such as cedar or obeche, a micro-balloon mix is often adequate, and is of lower density.

Product Details

| | |
|-------------------|-------------------------------------|
| Composition: | Milled bleached cellulose wood pulp |
| Appearance: | White 'fluffy' fibrous consistency |
| Particle Size: | 200 - 300 microns |
| Particle Density: | Particles absorb resin |
| Bulk Density: | 100 g/litre approx |

| SP Micro Fibres | size | code | price |
|-----------------|-------|------------|-------|
| Tub | 500 g | ADHA215003 | £9.88 |

FLOW MODIFIER

**Flow Modifier - Colloidal Silica**

When added to resin with other filler powders, the colloidal silica will act as a thickening agent to prevent sagging on vertical surfaces. A typical mix would be 445 ml of resin, 145 ml of glass bubbles and 11 ml of colloidal silica.

| Colloidal Silica | approx volume | code | price |
|------------------|---------------|------------|-------|
| 250 g | 5 L | FILA220003 | £8.98 |

EPOXY RESINS BY SP SYSTEMS



SP 106 Multi-Purpose Epoxy System

This is a simple to use, all-purpose epoxy which can be used for:

- ✓ Gluing ✓ Coating ✓ Laminating ✓ Filling

With its range of hardeners and easy 5:1 mix ratio by volume, SP 106 provides a quick and convenient way of using one epoxy system for a very wide range of tasks. SP 106 has been established for over 20 years as the primary epoxy system for the manufacture and repair of wooden boats. Now also widely used in many other woodworking applications from cabinet making to the manufacture of large wooden moulds. With its Extra Slow Hardener, SP 106 can be used for jobs requiring a long working time or in the "tropical" conditions of high ambient temperatures. In its unmodified form, SP 106 can be used as a clear coating for wood and other substrates, or for laminating lightweight glass fibre fabrics such as those used for reinforcing joints. When used for clear coating, cured SP 106 should be overcoated with a UV-resistant varnish [page 51]. By using Glass Bubbles or Micro Fibres [page 104], an SP 106 resin and hardener mix can be turned into a very effective filling compound or gap filling adhesive. We can supply larger sizes to order. For user instructions visit flints.co.uk/downloads.

| SP 106 Multi-Purpose Epoxy | resin/hardener | code | price |
|---------------------------------|----------------|-------------|---------|
| 1 kg pack + fast hardener | 848 g/152 g | ADHF510037 | £31.58 |
| 1 kg pack + slow hardener | 848 g/152 g | ADHF510038 | £31.58 |
| 3.02 kg pack + | 2.56 kg/460 g | ADHF510041 | £54.67 |
| 10 kg resin only | | ADHF510004 | £160.75 |
| 1.8 kg fast hardener [for 10kg] | | ADHF510019* | £46.95 |
| 1.8 kg slow hardener [for 10kg] | | ADHF510031* | £46.95 |

*The 1.8 kg hardeners consists of 2 x 0.9 kg tins.



SP 106 Handipack This convenient little pack is perfect for small props and general repairs. It consists of resin, hardener and dispensing pumps which dispense in a special 2:1 mix ratio. Complete with instructions. NB: the SP Multi-Purpose Epoxy System ♣ has a 5:1 mix ratio by volume and the two systems are not compatible.

| SP 106 Handipack | resin/hardener | code | price |
|------------------|----------------|------------|--------|
| | 250 ml/125 ml | ADHF520012 | £34.09 |



SP 106 First Aid Kit Designed for boats, but also useful for general quick repair work and other small tasks like gluing, filling, fairing, coating, filleting

and laminating. Medium to low viscosity. 2:1 mix ratio.

□ Supplied in a tough plastic case with: 250 ml resin, 125 ml hardener, two calibrated pots, filler powders [microballoons, colloidal silica, microfibrils] fibreglass tape, brushes, sticks, and gloves.

| First Aid Kit for Boats | resin/hardener | code | price |
|-------------------------|----------------|------------|--------|
| | 250 ml/ 125 ml | ADHA606001 | £27.14 |



Remeltable PVC Compound

This material is used in similar situations to Silicone Rubber [see below ☞]. It provides a lower cost, but less durable option. Remeltable PVC can be poured over a master to form a flexible mould. Good tensile strength and flexibility will allow castings with deep undercuts to be removed from a one-piece mould, without damage. The material does not require a release agent and when the mould is worn, the product can be remelted [at 130 – 135°C] and used again – a fully recyclable product! We offer the product in two grades, Flexible [Beige] and Semi-Flexible [Blue]. Choose the Semi-Flexible for large moulds and the Flexible for more detail. The melting pot gives a thermostatically controlled temperature range of between 50°C and 200°C and will prevent scorching. Be aware that the product will not reach sufficient heat to melt on a water jacket double boiler. Jesmonite do not recommend using this in conjunction with their products, but instead to use a high grade silicone moulding compound.



| Remeltable PVC Compound | code | 1 kg | code | Tradeline 25 kg |
|-------------------------|------------|--------|------------|-----------------|
| Flexible [beige] | PRO1011482 | £11.30 | PRO1011505 | £160.45 |
| Semi-Flexible [blue] | PRO1011512 | £11.30 | PRO1011536 | £160.45 |

| Melting Pot | volume | code | price |
|-------------|--------|----------|---------|
| Melting Pot | 2.5 L | PRODPS25 | £466.25 |



Silicone Rubber

An excellent general purpose silicone rubber used for mould making where minute surface detail needs to be reproduced and deep undercuts are present. Silicone rubber has virtually no shrinkage and

therefore will accurately reproduce dimensions and is an extremely durable material. All packs include a curing agent. To thicken silicone rubber and enable it to be "battered up" onto vertical surfaces to create a mould add thixotrope agent.

| Silicone Rubber | size | code | price |
|-----------------------|-------|------------|--------|
| Includes curing agent | 500 g | PRO1011352 | £22.82 |
| Includes curing agent | 2 kg | PRO1011369 | £73.34 |

| Thixotrope | size | code | price |
|---------------------------|------|------------|-------|
| For 500 g silicone rubber | 15 g | PRO1011437 | £4.46 |
| For 2 kg silicone rubber | 60 g | PRO1011444 | £8.93 |

Also see Skinsil Silicone and Alginate [page 83].



Flints Slush Latex

A popular latex generally used for cast moulding where the latex is poured into a plaster mould. The latex is sensitised to give a speedy build up on the plaster. Thorough drying takes place over 24 hours. The latex should be detached with talc before removing from the mould.

See website www.flints.co.uk/downloads for full data sheets.

| Slush Latex | size | code | price | Tradeline |
|-------------|------|--------|--------|-----------------|
| | 5 L | PAT848 | £66.33 | 4 x 5 L+ £59.69 |