

Technical Data Sheet

Polycor® 945 Tooling Gelcoat **Polyester Tooling Gelcoat**

Description

- Green or Orange coloured thixotropic liquid,
- Unsaturated polyester resin in styrene monomer,
- Excellent weathering,
- Medium reactivity, accelerated,
- Light stabilised,
- Excellent blister resistance,
- Excellent colour retention and gloss recovery (= less buffing time)
- Contains no lead
- Modified for improved water and chemical resistance.

Polycor® 945 tooling gelcoat is specifically designed for mold making. This precision-formulated gelcoat utilises selected resins to exhibit high heat distortion, to withstand the repeated molding of FRP laminates. These resins provide a high gloss and hard, durable surface. Polycor® 945 gelcoat is formulated to be low in hide, so that imperfections can easily be spotted. Read application instructions carefully, as misapplication can produce unacceptable results.

Polycor® 945 tooling gelcoat requires only the addition of the proper amount of an appropriate methyl ethyl ketone peroxide to cure.

Typical Properties

Reactivity* (25°C, with 1.8% Andonox LCR-S)	18 to 23min
Viscosity (25°C Brookfield RVT, spindle No.4 @ 4rpm)	15,000mPa.s to 20,000mPa.s
Thixotropic Index (Brookfield RVT, spindle No.4, speedsc2 & 20rpm)	6.5 to 7.5
Flash Point	31°C
Volatile Organic Content	46.5 to 49.5%
Lay-up Time	60 to 90min
Barcol Hardness	35 to 45
Hide Complete (wet)	22 to 29mils



14 Tullamarine Park Road
Tullamarine
Vic Australia 3043

+61 (0) 3 9339 7300

25 Ashover Road
Rocklea
QLD Australia 4106

+61 (0) 7 3216 6990

sales@prpcorp.com.au

*Cure: It is recommended to recheck the gel time in the customer's plant as age, temperature, humidity and catalyst will produce varied gel times.

PRP Corp recommends Andonox LCR-S or alternatively, KP-9, as the catalysts to be used. The catalyst level should not exceed 3% or fall below 1.2% for proper cure, with 1.8% at 25°C being ideal.

This product should not be used when temperature conditions are below 15°C (as cure may be adversely affected).

Application

Tooling gel coats are applied to the plug to be duplicated. Care must be taken when preparing these plugs with wax to permit positive release.

Best results are obtained by applying 2 gelcoat layers of 450±50µm (18±2mils), wet, each and allowing the material to gel and cure between these two applications. Allow the gel coat to attain lay-up time between each coat.

Apply each gel coat layer with a minimum of two passes (three passes are preferred). For best results, ensure that the tooling gel coat is allowed to "breathe" for 2 minutes between each pass.

Do not allow over-spray and thin passes to go over 5 minutes without covering with a fresh pass. Do not apply more than 508µm (20mils) per coat, as this can result in cracking of the gel coat film after use. It is essential that no more than 1016µm (40mils), wet, total be applied with any of the tooling gel coat. However, thinner films will exhibit more print-through and distortion.

Polycor® 945 tooling gelcoat is formulated for both airless and conventional spray applications. Brushing or rolling is not recommended. PRP Corp recommends a gel coat delivery rate of no more than 1.1kg/min with conventional air atomized equipment, and no more than 1.8kg/min with airless equipment.

PRP Corp tooling gelcoats are formulated for spray application. Brushing is not recommended. Best results are obtained using pressure pot spray equipment and batch mixing.

Do not spray more than 1.13kg/min (2.5pound/min) of Tooling Gel Coat. A minimum of 414kPa (60psi) atomizing pressure (measured at the gun with fan full open) should be used to properly atomize the material.



14 Tullamarine Park Road
Tullamarine
Vic Australia 3043

+61 (0) 3 9339 7300

25 Ashover Road
Rocklea
QLD Australia 4106

+61 (0) 7 3216 6990

sales@prpcorp.com.au



When using conventional tooling resin, the gel coat should not be left overnight before being laminated onto, as the gel coat may pre-release and/or lose its tack and not provide a good bond between the gel coat and laminate. If using a low shrink laminate system, follow lay-up time recommendations for these specific systems.

Do not over-mix gel coats. Over-mixing breaks down gel coat viscosity, increasing tendency to sag, and cause styrene loss, which could contribute to porosity. Gel coats should be mixed once a day for 10 minutes. The gel coat should be mixed to the sides and bottom of container with the least amount of turbulence possible. Air bubbling should not be used for mixing. It is not effective and only serves as a potential for water or oil contamination. Do not add any material, other than the amount of recommended methyl ethyl ketone peroxide, to this product without the advice of a representative of PRP Corp.

Polycor® 945 gelcoat may not be compatible, in the liquid state, with other gelcoats or resins. Spray and pumping equipment should be completely cleaned and flushed prior to use. Do not add any material, other than a recommended methyl ethyl ketone peroxide, to this product without advice from a PRP Corp representative.

PRP Corp does not typically recommend that pumps or catalyst injection systems be used for spraying tooling gelcoats. Even with the equipment properly calibrated, potential problems can occur due to poorly atomized catalyst, poor tip alignment, contamination, poor application procedures, etc... which will quickly negate all benefits of calibration. The equipment & application procedures must be monitored on a routine basis to ensure proper application and gel coat cure. Ask about and adhere to all equipment manufacturers recommendations.

Production requirements might dictate the “calculated risk” of airless catalyst injection equipment for the spraying of production units and therefore the risk of a ruined or sub-par unit. This risk is obviously much greater when building costly plugs and molds.

In order to reduce the risk of a ruined mold, specific (but not inclusive) directions are:

1. Calibrate daily or for each job:
 - a. Gel coat delivery: 0.68kg to 1.13kg (1.5 to 2.5 pounds) per min,
 - b. Catalyst content: 1.2% – 3.0% (1.8% at 25°C, ideally),
 - c. Gel coat tip size: (0.021 inch).
2. Ensure complete mixing of gel coat/catalyst and atomization. If air assistance is used, keep it as low as possible. Excess air-assistance can result in trapping air in the film, and sag tendency.
3. Do not let raw catalyst drops fall on the plug surface or on the sprayed gel coat layer.
4. Spray gun distance should be no less than two feet and no more than three feet.



14 Tullamarine Park Road
Tullamarine
Vic Australia 3043

+61 (0) 3 9339 7300

25 Ashover Road
Rocklea
QLD Australia 4106

+61 (0) 7 3216 6990

sales@prpcorp.com.au



Equipment and application should be constantly monitored to maintain effective calibration, excellent gel coat and catalyst mixing, etc... This would require an assistant to ensure effective monitoring. When applied with care, this tooling gelcoat will provide a durable and long-lasting mold. However, when compared to a hot pot, where catalyst is pre-mixed into the gel coat, airless catalyst injection equipment and methods of application can cause problems such as:

- a) Spotty cure sticking due to improper ratio catalyst / gel coat, poor atomizing from incorrect calibration, malfunctioning injector slave pumps, etc.
- b) Porosity due to excessive air assistance, flow rates greater than 2.5 pounds per minute, more than 6 to 8 mils wet in one pass, etc.
- c) Low initial gloss due to incorrect catalyst calibration, raw catalyst sprayed on plug, under-cured gel coat film, etc.
- d) Gloss dulling due to under or over catalysation (hence under-cured gelcoat)
- e) Uneven film thickness due to operator error, excessive surges during spray out, etc.
- f) Sag tendency due to excessive air assistance, excessive thickness gel coat layer, spraying too close to the mold, etc.

Each user must determine the suitability of this product to their particular application. PRP Corp is always available to assist in the proper selection of all Polynt-Reichhold products available for commercial use.

Precautions

The primary reason for using tooling gel coats to manufacture fiberglass molds is to produce a high quality, durable and glossy surface. Most of the frequent defects result from poor applications. You may avoid them following the suggestions below:

1. Do not use varnish as a sealer or finish coat when preparing a plug (styrene in the gel coat will soften the varnish).
2. Proper spray technique is very important to eliminate porosity in the gel coat film. Internal air-atomization spray equipment, airless, or catalyst injection spray equipment can result in porosity in the gel coat film if improperly applied. Tooling gel coats will not be as tolerant of inaccuracies in a catalyst injection system as are production gel coat.
3. Tooling gel coats appear thick in the container. After mixing the gel coat, it becomes sprayable. Do not over-mix, however. Over-mixing breaks down viscosity, increasing tendencies to sag and causes styrene loss, which might create porosities. Tooling gel coat needs mixing when opened (and daily thereafter). The gel coat should be mixing to the sides and bottom of the container with the least amount of turbulence possible. Air bubbling should not be used. It is not effective and only serves as a potential for water or oil contamination.



14 Tullamarine Park Road
Tullamarine
Vic Australia 3043



+61 (0) 3 9339 7300



sales@prpcorp.com.au

25 Ashover Road
Rocklea
QLD Australia 4106

+61 (0) 7 3216 6990

4. Always keep the container covered (except, of course, when transferring material). An open container is easily contaminated and allows for more styrene evaporation.
5. Each coat must cure as a total film, rather than several thin films which might cure independently of each other. It is essential to cover over-spray and thin passes as soon as possible – within 5 minutes. Thin, independently curing films can create a textured effect when the surface is sanded and buffed.
6. Never reduce tooling gel coat with a conventional paint or lacquer thinner, or acetone.
7. Disperse catalyst thoroughly in tooling gel coat. Poor distribution causes uneven cure, print-through, and premature release from plug before lay-up.
8. Print-through (fibre pattern) and distortion are directly proportional to film thickness. Thicker films resist print-through and distortion better than thinner films.
9. In spray application of tooling gel coats, use slow, even strokes, triggering the spray gun at the end of each stroke to prevent excess build-up at overlaps.
10. Do not apply tooling gel coat over wet Polyvinyl Alcohol (PVA) parting film.
11. Install an oil and moisture trap on the compressed air line leading to the spray gun to remove lint, rust, oil and moisture.
12. Use the catalysed tooling gel coat within its working life, with a proper allowance of time for clean-up of equipment.
13. Tooling gel coats may leave a certain amount of “colouring” when sanded and/or buffed. This is a function of the pigment used and is not an indication of poor cure.
14. Do not add anything, other than the appropriate methyl ethyl ketone peroxide, to these products.

Storage Limitations

Uncatalyzed, this gelcoat has a usage life of 90 days from date of manufacture when stored at 23°C or below in a closed, factory-sealed, opaque container, and out of direct sunlight. The usage life is cut in half for every 15°C over 23°C. Totes of product can have even shorter usage life (66% of the drum shelf life mentioned above).

Disclaimer and Limitation of Liability

This datasheet contains data that is current and accurate to the best of our knowledge. Differing materials, substrates, environments, site conditions, and product storage, handling and application may affect results. Users should carry out spot-tests to determine each product’s suitability for their particular purpose. This data sheet and the properties of the product may change without notice. It is the user’s responsibility to ensure that this data sheet is the most up to date version. PRP Corp is not liable for any loss or damage resulting from incorrect, careless, or negligent use or storage of the product, including use of out of date product. Any liability arising from use of the product is limited to the replacement or purchase price of the product. 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 user.



14 Tullamarine Park Road
Tullamarine
Vic Australia 3043



+61 (0) 3 9339 7300



sales@prpcorp.com.au

25 Ashover Road
Rocklea
QLD Australia 4106

+61 (0) 7 3216 6990

Safety Information

For all safety and regulatory information, please contact PRP Corp for the most up to date Safety Data Sheet.

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



14 Tullamarine Park Road
Tullamarine
Vic Australia 3043



+61 (0) 3 9339 7300



sales@prpcorp.com.au

25 Ashover Road
Rocklea
QLD Australia 4106

+61 (0) 7 3216 6990