

Costing Information Glass Reinforced Fibre

Generally one uses glass fibre chopped strand matt at 450gsm. This means that 0.450 gsm of glass covers 1 sqm. If using 300gsm of chopped strand matt then 0.300gsm of glass fibre is used per 1sqm, and if using 600 gsm chopped strand matt then 0.600 gsm of glass fibre will be used per sqm.

For Costing on Fibreglass

Surface area x weight of glass fibre per sqm x price/kg = the fibreglass cost.

10 sqm x 0.450/kg x R10,50/kg = R47,25 will be the glass cost per 10 sqm area.

If there is more than one layer, you then multiply the surface area by the number of layers.

Example on 3 layers of a 10 sqm area.

Surface area x 3 x the weight of glass fibre per sqm x price/kg = the fibreglass cost.

(10x3 = 30 sqm) x 0.450kg x R10,50/kg = R141,75

For Costing on Resin

The resin usage is calculated for costing purposes at a 3:1 ratio. (3 kg of resin to 1 kg of fibreglass)

Weight of fibreglass per kg x ratio of resin to fibreglass = quantity of resin needed per sqm.

0.450kg (of fibreglass) x ratio of 3 = 1.35kg resin.

If more than one layer is used multiply by number of layers.

For the resin cost, multiply the resin quantity in Kg's by the price of resin per kg. eg 2.7kg x R 10.50/kg (resin cost) = R 28.35 is the cost for the 2.7kg of resin.

Generally one can achieve ratios of 2,5(resin) : 1(fibreglass) and lower with hand lay-up if one uses resin sparingly and you have enough time to properly wet out the glass fibre.

For Costing on Gelcoat

Gelcoat should be applied between 600 gsm to 800 gsm. Although the range is a minimum of 600gsm and a maximum of 800gsm.

This information would also apply to flowcoats and poolcoats.

Hence costing is:

Surface area x recommended quantity of Gelcoat per sqm x Price p/kg of the Gelcoat/Poolcoat/Flowcoat.

Eg. 10sqm x 0.800 kg x R 10.50 = R84.00 per kg (Total cost of the gelcoat only)

For Costing on Catalyst

Resin, Gelcoat, Poolcoat and Flowcoat are some of the polyester resin products that use a minimum quantity of 1% catalyst (MEKP-NA2) and a maximum quantity of 3% catalyst (MEKP-NA2).

For costing purposes 2.5% is the average amount of catalyst calculated per kg. Again for costing purposes 2.5% catalyst is used on resin, poolcoat, gelcoat and flowcoat is the amount of catalyst used.

Note: Most of all the products used in unsaturated polyester resin products, you will have to add a catalyst to it to get it to solidify. We recommend that you always make sure that you use the correct ratio's and quantities.

For Costing on Coremat

If you are using coremat you require 600g of resin per sqm of coremat per mm thickness of coremat.

i.e. If you have 1 sqm of 1mm coremat you would use 600g of resin to wet it out.

Again if you had 2 sqm of 2mm coremat you would then use:-

Area in sqm x thickness of coremat x Resin ratio per mm thickness = total quantity of Resin needed.

eg 1: 10 sqm x 1mm thick-Coremat x 0,600 kg of resin = 6 kg resin.

eg 2: 10 sqm x 2mm thick-Coremat x 0,600 kg of resin = 12 kg resin.

For Costing of Fibreglass Surface Tissue

If you use fibreglass surface tissue, then you need 4 times the weight of the surface tissue in resin to wet it out.

On average Fibreglass Surface tissue weighs 25 gsm therefore you need 100 g of resin **per** sqm of fibreglass surface tissue (Work to a ratio of 4:1).

0,025 g of fibreglass tissue x 4 = resin needed for 1 sqm of fibreglass surface tissue.

If you use a 45 gsm surface tissue the calculation would be

45g x 4(Resin Ratio) = 180g resin

25g x 4(Resin Ratio) = 100g resin

Costing of Consumables

Acetone is used to clean materials like a brush, roller or surface. One might discard brushes and rollers after use. The moulds are prepared with Ram Wax Run-in and PVA Red Releasing Agent, this is one of a few releasing systems that is available. These costs are generally covered by the wastage factor built into the ratio of 3:1 for resin.

General Information

Polyester resin is catalysed by the addition of MEKP Peroxide catalyst. The resin is a viscous liquid that easily wets out glass as it is applied with dabbing actions of a brush.

When the resin is catalyzed it will remain in a liquid form for approximately 15 to 25 minutes, depending on temperature humidity and quantity of catalyst that was added to the mix. The resin first gels to a jelly like state and then transforms to a solid hard material. This process releases heat which speeds up

the process of curing. The resin manufacturerers mainly pre-accelerate the resins to a specific geltime (15 - 25min).

With hand lay-up applications the geltimes run between 15 and 25 minutes to provide time for the material to be spread evenly and remove all air bubbles in the laminate with a air releasing roller or the fibreglass brush by the applicator. There is a wide range of geltimes for different applications that can be modified to react faster or slower depending on the application. The peak temperature reached during the cure is referred to as the peak exotherm which can reach up to 120 degrees Celcius.

Mixing ratios of catalyst are generally between 1 and 3% with 2% being the norm, below 1% resin will be under catalyzed (not allowing resin to reach it's properties) and over 3% catalyst will be over-catalyzed affecting the curing of the laminate.

Percentages change with differences in temperature. For instance the geltime will double for every drop of 5 degrees. i.e. the geltime gets longer the colder it gets, the geltime also gets faster the hotter it gets. One should never laminate with resin below 15°C or over 35°C. Most geltimes are recorded on datasheets for the resin you use at 25°C in a pot.

When used on a thin laminate the temperature in the laminate can be considerably less.

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