

Being A *Unique Polymer Systems LTD* Distributor



We have been having conversations with our new partners concerning the vital importance of getting applications **RIGHT FIRST TIME** to avoid any product failures.

The TESTING results are of course all published on the TECHNICAL DATA SHEET that is available for all products that UPS supplies to distribution.

Many of our distributors are or have been involved with the application of coatings albeit composite polymers or powder coatings

In ALL INSTANCES, the KEY TO SUCCESS is the correct application by following the STEPS as set down by the manufacturer.

It is important to remember that there ARE DIFFERENCES between different composite polymers and so to be SAFE the technical data sheet should be consulted before making a start. It is also true that sometime formulations change from time to time and this will be shown on the Technical; Data Sheet – we will also tell of course our distributors of any changes.

It is true that product failures are very rare as the products themselves are all well proven and tried not only in applications but also in the laboratory where they are again tested in the most cases to destruction.

It is also true that over 99% of problems with coatings can be traced back to one of the application steps NOT being carried out correctly or the conditions of the quoted application change (i.e. increases in temperature and or additional / change in the chemicals expose to the coating)

This is especially critical with ens users and or applicators that have been using coatings form another supplier. To be safe, the TECHNICAL DATA SHEET should be read every time.

This is just a quick check list guide that I hope will assist you when making a flow chart for product application within your company.

The 8 STEPS FOR SUCCESSFUL APPLICATIONS -

1 – fitness for purpose

2 – Joint Design

3 – Surface Preparation

4 – Product Mixing

Being A *Unique Polymer Systems LTD* Distributor

5 – Application

6 – Curing

7 – Service Conditions

8 – inspection and touch up

If these steps are carried out correctly and according to the manufacture technical data sheets – the APPLICATION WILL BE SUCCESSFUL!

- Step 1 and what product is required can of course be easily made by using the UPS APP – apple / google / uniquepolymersystems

We will be introducing each step-in detail over the next few weeks – IF any further assistance is required please email sales@uniquepolymersystems.com

1 – Fitness for Purpose – this of course is the beginning of the whole application process when it is decided WHAT product(s) to use on the specific application. The MAIN considerations are:

Questions to ASK your prospect to get the right information to specify the correct polymer UPS product

What is the problem that the end user is experiencing? (i.e. erosion – corrosion – chemical attack – abrasion – efficiency etc)

- **What is the product being pumped** (i.e. is abrasive with particles etc)?
- **What is the TEMPERATURE** of the products (i.e. including any cycling or friction effects of the application) – BEWARE that there may be cycling in temperature – ASK!!
- **Is there a CHEMICAL involved** (i.e. % concentration / pH / name / more than one combination?)
- **What is the pressure** (if relevant in a vessel)?
- **Have they already tried** different products or methods to rectify this problem?
- **How much is this problem costing** them in maintenance budget \$ - downtime – lost production – lost business etc?
- **Are there any constraints** to an application? (i.e. access – safety – etc)

SO, LETS LOOK AT A REAL-LIFE EXAMPLE -

Being A *Unique Polymer Systems LTD* Distributor

End user has an end suction centrifugal pump unit that is losing its efficiency and flow rate due to the wet parts of the pump becoming worn and damaged by the process.



The fluid being pumped was dirty water with a percentage of solids suspended in the fluid.

Temperature ambient

No Chemicals of any substance

Pressure not an issue (i.e. the pump case had Not lost any integrity)

The problem is causing the unit to come out of its system frequently (twice a year) and means maintenance must switch over to stand by unit.

Cost of removing / stripping and re installation in man hours @ \$?

Cost of SPARES replaced (bearings – seals – gaskets etc) @ \$?

Cost of REPLACEMENT parts @ \$?

Cost of downtime / lost production (if applicable) – there will be a company figure available on hour rate if lost BUT may not be in public arena.

Other considerations \$?

So, the **PROBLEM is WEAR** and the **SOLUTION is a PRODUCT** that will REDUCE the amount of wear and subsequently enable the pump to be in service LONGER with less maintenance cost and less LOSS of production.

We KNOW that the CERAMIC CARBIDE products of UPS have been designed to not only REPAIR the damage BUT to help to STOP further damage from happening.

Namely UPS 200 EG Paste Grade Ceramic Carbide to be used to REPAIR the damaged areas in the pump volute / impeller – to enable the profile to be retained to near new status.

Then application of the UPS 205 FG Fluid Grade Ceramic to help reduce the abrasive effect of the pumped fluid and so keep the fluid flow as near to pump curve as new unit and assist in the efficiency loss.

Being A *Unique Polymer Systems LTD* Distributor

Other considerations of Step 1 could be the COST of this application. SO, you would need to be ready and knowledgeable on HOW to QUOTE the product. About the WORK this of course would be the responsibility of the workshop in how many hours to apply the 200 and 205 products.

So, let's take the 200 EG. This is a PASTE ceramic carbide and as such to work out exactly the amount required to fill in all the damaged part of the above pump would be not possible due to the amount / area of damage and how deep the damage was.

So, the rule of thumb would be to use 1 x 2 kilo pack on a small pump.

The advantage of the 200 EG is that it is easy to JUST USE A SMALL PART and then keep the remainder for further repairs. SO importantly is a STOCK item for companies who repair their own units. It is also important to say that your end users will NOT want to RUN OUT of product half way through the repair and so MORE is BETTER.

Some distributors will SELL 1 BOX of the 200 EG (i.e. 4 x 2 kilos) and offer to take back any UNOPENED containers. USUALLY though the customer will accept the fact that the product will be used in site all the time.

To quote the amount of 205 FG required for the application is somewhat easier as is a fluid and so we can work out how much will be need by the area and thickness.

You will need to know the area required to be coated. SO, if it works out to be 20 sq. ft. (1.9 sq. mt) and the product you are recommended is 205 FG we know from looking at the technical data sheet for this product.

Coverage Rates

1kg (2.2lb) of fully mixed product will give the following coverage rates –

1.784m² at 250 microns (17.5ft² at 10mil)

1.485m² at 300 microns (16ft² at 12mil)

1.271m² at 350 microns (13.55ft² at 14mil)

Please note that the coverage rates quoted are theoretical and do not take into consideration the profile or condition of the surface being repaired.

The way that the coverage rate is worked out is by coating GLASS SURFACE PLATE as GLASS will be the smoothest surface and the BENCH MARK for coverage rate.

The other fact that needs to be remembered is that on AVERAGE one brushed coat of the fluid ceramic will end up being around 250 microns (10 mil) thick. It is recommended to apply TWO coats for maximum abrasion resistance.

So, on this pump unit the end user will need:

1 x 2kilo UPS 200 EG (or a box of 4 x 2kilo if acceptable)

Being A *Unique Polymer Systems LTD* Distributor

@ 20 sq. ft. X 2 = 40 sq. ft. (i.e. 2 COATS) will need 3 x 1 kilo of UPS 205 FG.

The OTHER consideration when QUOTING is to remember that the coverage has been estimated in a PERFECT finish situation – and that it will be not so in real life. The surface will be irregular and so require more product. It is also true that wastage is not included in this figure.

It would be advisable then to add a minimum of 25% EXTRA to allow for these variances.

So, in this application 1 box of the UPS 205 FG would be required (i.e. 4 x 1 kilo unit)

The ESTIMATED quote therefore for this pump to this customer would be:

1 x 2kilo UPS 200EG

4 x 1 kilo UPS 205FG

Translated into a cost of \$

Other consideration that will affect the quote and what the end users will need to order is the fact that with the UPS 205 FG the end users will need to have half the 205 FG in ONE COLOUR (i.e. GREY) and the other half in different colour (i.e. BLUE). This will be covered MORE in the application of product section. BUT essentially, we have different colours for mainly 2 reasons –

1 – so that all the area being coated is coated twice (as can SEE if any area is missed)

2 – on a strip down after coating it is sometimes possible to see where one colour has been worn off so can identify maybe problem areas like cut water in pump and or cavitation damage)

As part of the sales call / application request process – we do NEED to get to a situation where we can offer a SOLUTION to the customer for his PROBLEM that is ACCEPTABLE to the customer.

i.e. IF we can offer a product that will extend the operating life of this pump will you be interested in that?

If we find that there are alternative products that will be acceptable in the application then we need to list the features and benefits of them all and then get to an alternative sales situation. i.e. will the UPS 105 EG be a better repair paste material or the UPS 200 EG?

Being A *Unique Polymer Systems LTD* Distributor

FURTHER INFORMATION SPECIFIC TO QUOTING -----

Unique Polymer Systems UK – **HOW MUCH DO I NEED?**

A Guide to Quoting UPS products –

All new distributors and distributors sales team will be asked often to QUOTE not just the products themselves but also linked to **HOW MUCH WILL I NEED** to coat my equipment?

To quote the product itself will of course be quite simple as there will be a price list issued by your distributor for all the products that UPS supply. It is important however to MAXIMISE the order value to the end users in that we supply the products in BOXES of a QUANTITY. This also applies to consumable items such as the UPS 19601 emergency repair wrapping products.

The price list itself is quite easy to understand as follows:

HEADINGS:

Product Code = the code of the product to enable easy identification and useful when looking to quote against the competition from the UPS competitors' products sheet. i.e. UPS 105 EG = BELZONA 1111 etc. If you do NOT have a copy of the equivalent sheet please get one from sales@uniquepolymersystems.com

Product Name = the name of the product that indicates exactly what it is i.e. UPS 105 EG is called a METAL REPAIR PASTE.

Volume solids = this tells you if the product has any ADDITIVES in it – i.e. if 100 % SOLID then this means the product does NOT have any other additives other than the basic component parts (i.e. resin, epoxy, solid substances etc.) that make up the mixed final product.

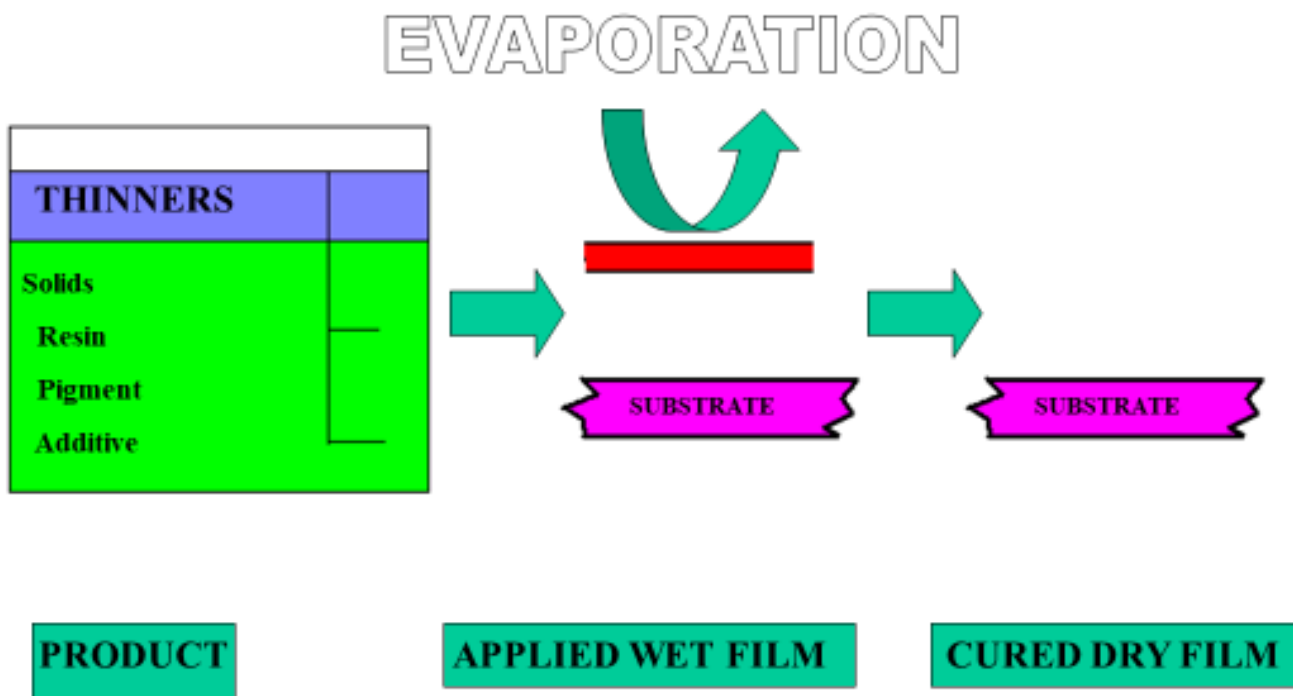
If the figure is LESS than 100% - then this will usually indicate that the product also has some additive to it that will evaporate during either the application of the curing of the product like a solvent for example.

This all becomes relative when you quote as if is 100% solid then what the customer pays for the product is what exactly the customer gets when using in the it. However, IF the products are for example 80% solids the this indicates that there is 20% of the product that could be a SOLVENT material. The SOLVENT material be a delivery mechanism (TO MAKE THE MIXED PRODUCT MORE FLUID TO ENABLE EASIER APPLICATION)– i.e. the solvent is added to enable the other company parts to be able to be delivered onto the surface of the application in question.

So, it will follow that the PRICE the customer pays also includes this 20% that in effect is a WASTED part of the product as evaporates when applied. So, if a kilo of product is \$100 and is 80% solids – then 20% of the purchase price is NOT part of the final cured coating itself.



Mixing the Product. metalmixing.aspx



Coverage Rates = will be the actual coverage of the product in the unit supplied i.e. 1 kilo of the UPS 105 EG will cover APPROXIMATELY 0.406 m² @ 1mm per 1 kilo DFT.

DFT = Dried Film Thickness (this is then relevant as if the product is 100% solids then ALL the 1 kilo will be used in the repair – IF 80% solids then ONLY 80% of the product will be used in the repair. The other 20% will in effect be wasted as will evaporate into the environment (not good of course and VERY toxic smells will emulate for the application)

This FIGURE then is the MAIN figure that you will need if you are being asked to quote for a piece of equipment -

Colours will of course be self-explanatory (you will need of course to specify the colour when ordering)

Pack Size = the PACK SIZE is the PACK that the individual product is packed in – i.e. UPS 105 EG is packed in a box of 4 x 1 kilos. Every EFFORT should be made by sales to sell BOXES containing the 4 x 1 kilos rather than just 1 box of 1 x 1 kilo.

RRP – Recommended Retail Price is the price that you sell to the end users at.

Being A *Unique Polymer Systems LTD* Distributor

MOQ = Minimum Order Quantity – i.e. UPS 105 EG is packed 4 x 1 kilos in one BOX and that is the MOQ for that product.

If you are asked to advise HOW MUCH PRODUCT WILL I NEED FOR THIS APPLICATION from your end user – you will NEED TO KNOW what area is needed to be coated before you can give that information –

When you have that information, you can then estimate the amount of product the end user will need based upon the coverage rates as in the price list.

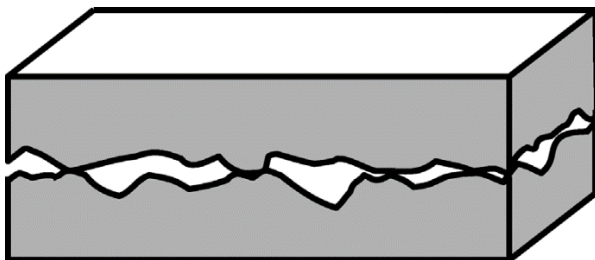
In MOST instances two coats are required for best performance –

i.e. customer has a pump in the workshop and the approximate surface area that will require coating is 20 sq. ft. You are advising your end user to use the UPS 205 FG Fluid Ceramic Carbide

UPS 205 FG will cover 19.2 sq. ft. (1.78 m²) @ 0.0098" (250 microns) per 2.2 lbs (1 kilo)

So, for 1 (one) coat of the UPS 205 FG will need 1 kilo for one coat and two (2) kilos for two (2) coats –

It needs to be noted at this stage that the coverage rates as we publish are evaluated by using GLASS as the substrate to make the calculations from – as this then is the “bench mark” for all our coating products coverage figures.



The surface is abraded to a minimum of 75 microns (0.003") and so will be comparatively ROUGH and so take up MUCH MORE product of a given surface area due to the product having to fill in the peaks and troughs as the diagram to the left

As most substrate surfaces, will be rough and pitted this coverage figure is APPROXIMATE and is advisable to add back 25% from the coverage figure you work out. Plus of course there is an element of wastage when the product is applied –

It is therefore best to sell and quote in NEAREST as you can to the exact figure

So, in this instance – and applying TWO COATS the end user will need to buy a minimum of 2 x 1 kilos – in reality it would be best to sell 1 BOX of the UPS 205 FG (4 x 1 kilos) with 2 X 1 kilos blue and 2 x 1 kilos grey.

Example:



In this VOLUTE CASE, we can see that there is a LOT of DAMAGE to the SURFACE. So, before we can apply the UPS 205 FG carbide coating we would have to fill in and re profile the case. We would do this with the UPS 200 EG PASTE ceramic

We can see in this picture that the volute has been repaired with the UPS 200 EG and then coated with two coats of the UPS 205 FG ceramic carbide. In this case the GREY colour is the top colour that



You would then add in a 25% figure for wastage and coverage of uneven surfaces. SO, you would normally go to a BOX of UPS 205 FG (i.e. 4 x 1 kilo units - 2 blue and 2 would make commercial ail sense. PLUS, from a purely sales perspective it will make a start with your end users THINKING about using the ceramic carbide coatings on ALL THEIR APPLICATIONS. EVERY FLUID FLOW APPLICATION WILL BENEFIT FORM A UPS COATING!

The reason for the two colours is essentially twofold –

- 1 – so that when you are applying two coats you can SEE that you have covered all areas properly
- 2 – when the pump comes in for overhaul again there will be a visual indication of excess wear areas by being able to see the two colours – this can help greatly in trouble shooting the system that the pump is operating in (i.e. cavitation – throttling back vales etc. etc)

The above calculations cover how to quote for applications involving and FLUID POLYMER APPLICATIONS. In the case of PASTE POLYMER applications, the quotation process is somewhat different in that by using a PASTE will indicate that there are areas in the application that will need FILLING up and so coverage is only possible on average use in the application UNLESS there is of course a definite HOLE or some area with a consistent area that needs to be filled

Being A *Unique Polymer Systems LTD* Distributor

It would be usual then to be able to work out exactly how much FLUID COATING is required and then ADD IN a few kilos of the paste polymer for hole filling.

NOTE: It is important to bring to the attention of your customer that they do NOT want to RUN OUT of product half way through an application as of course the surface preparation and curing will come into question. SO, BETTER to have TOO MUCH than TOO LITTLE.

Is not an exact science!!

Conclusion (FLUID COATINGS)

Work out how much area needs to be coated

Work out how much product it will require to do the coating and add in an extra 25% for wastage and irregular surfaces

Try and sell more rather than less or the customer may not have enough product half way through his application

Conclusion (PASTE REPAIRS)

Due to the irregular surface, it is not possible to make an exact calculation in most cases – the PASTE GRADE ceramic should therefore be supplied in suitable box qty.

We at Unique Polymers are always ready to help you to quote if required so please if in doubt – just ask. If you are with a customer and they have a complicated application where you do not feel confident enough – again tell the customer that you will need some help with this – take a picture(s) of the app and send over to use and we will help you out quickly

PLEASE also remember that we do have the UPS APP on both apple and android platform. It can be downloaded from either the apple store or google store.

Hope all the above helps – and comments of any suggestions to make - please mail us.

NOTES

1 Inch = 1000 mils = 25.4 mm

1 mil = 25 microns

4 mils = 100 microns = 0.1 mm

8 mils = 200 microns = 0.2 mm

16 mils = 400 microns = 0.4 mm

1/16" = 62.5 mils = 1.6 mm

1/8" = 125 mils = 3.2 mm

1/4" = 250 mils = 6.35 mm



Surface Preparation



Surface Preparation



This
Is
Good



A SMOOTH surface is NOT the REQUIREMENT.

75 microns
Rough not
SMOOTH
Angular
Grit

Theoretical Coverage Rate:

This value allows you to calculate how much product will be required to coat a given AREA at a given dft.

This Theoretical Value is a Purely mathematical calculation which uses the volume solids and the required dft to work out how much area can be coated by a given Volume of WET product AS SUPPLIED.

$$\text{Square Meters / Litre Covered (m}^2\text{/l)} = \frac{\% \text{ Volume Solids} \times 10}{\text{dft (microns)}}$$

For Example: Product has Volume Solids of 100% it will suffer no Shrinkage & at dft of 1mm (1000 microns) will cover 1 m²/l

In reality, the WORKING COVERAGE RATE will always be lower as:

Surface Roughness – Surface Temperature – Operator Skill – Substrate Porosity

Being A *Unique Polymer Systems LTD* Distributor

It will be the case that IF your end user wants your company to do all the application and overhaul work then you will of course liaise with workshop and estimators for total pump cost BUT as this may well be the point of SALE and you will need to give a price there and then (or it may well be the customer will not be in the same physiological positive space as directly after your presentation and you may have to start all over again when to have the price!! –

To ASSIST in sales, use the ASTM testing information (i.e. product hardness, temperature, and chemical resistance etc etc)

PLUS use the success stories and referrals hat we have a wealth off.

NOTES – SUGGESTIONS:

- ALWAYS ask enough questions so that you can PRESENT a RELEVANT product to the end users PROBLEM. i.e. SUPPLY the solution NOT a general presentation on products as without FOCUS usually will not result in a sale.
- ALWAYS have your sample board with you to be able to SHOW the product you are discussing with the customer. He can then VISUALISE what it will look like in his pump unit (i.e. touch and feel it)
- ALWAYS have a price list with you (will give price per product)
- ALWAYS have big book with technical data sheets for all product (will give coverage rates for chosen products)
- ALWAYS have a green brochure to leave and make sure has your distributor contact information on
- ALWAYS have order pad ready to leave a written quote
- ALWAYS ask for the order no

If we have made a presentation and the customer has not bought then there will be a reason for that. The reasons therefore then need to be discussed to see what help is available to make the close.

So, armed with tis knowledge we can move onto step 2 that is to follow.