

Borders Model Boat Club

www.bordersmodelboatclub.yolasite.com

About Paint for Models

The main three components of any paint are the pigment, which gives the colour, the binder, which enables the pigment to stick to surfaces, and the thinner or solvent, which alters the consistency so that the paint can be spread on the surface by a spatula, brush or spray.

The pigment in paint for models is ground far finer than for household paints to enable finer detail and thinner coatings. The pigments vary in density, so some colours are more prone than others to having the pigment sink to the bottom of the tin to form a toffee like lump. It is very important to stir the paint well before use, probably for twice as long as you think might be enough.

The binder is what makes the difference between types of paint. It determines how hard or flexible the finish will be. Examples of binders are linseed oil, acrylic resin and epoxy resin.

The thinner complements the binder. It could be water, alcohol, white spirit or cellulose thinners, depending on the type of binder.

Paint manufacturers also add substances to help disperse the pigment, modify the surface finish (ie gloss, satin or matt), improve the flow of paint from the brush to the surface, speed up drying time and so on. These too can sink to the bottom of the tin, so if you don't stir a matt finish paint for long enough, you may get a gloss finish, which might also take a long time to dry.

It is best to stick to one type of paint on a model. If cellulose paints are applied on top of oil based paints, the surface will soften and bubble up as if a paint stripper had been applied. Acrylic based paints may not adhere to an oil based finish (and vice versa), and so on. Be wary of blending paints from different manufacturers to obtain a custom colour. The chemistry used by different manufacturers may not be compatible.

Model Enamels

These paints can be applied to a wide range of surfaces including most plastics, wood, glass, ceramics, metal, cardboard, sealed plaster and sealed hardboard.



Model enamels have an oil binder and a white spirit thinner and are available in gloss, satin or matt finishes. It is particularly important that matt and satin finish paints are stirred well to disperse the matting agent and other additives. If you don't bother, a matt finish paint will give a very shiny surface.

Enamels can be used straight from the tin or airbrushed with a suitable thinner. Two thin coats are always preferable to one thick coat. The usual thinning ratio is 2 parts paint to 1 part thinner.

Typical drying times are Gloss: 1-2 hours. Matt & Satin: 20-40 minutes touch dry, up to 24 hours for hard dry. Metallics: hard dry in approximately 10 days. Leave a minimum time of 6 hours between coats.

Model enamels are not "hot fuel proof", so will require coating with a "Fuel Proofing" varnish if used on a model with a diesel or glow-plug engine. Always make up a test piece to check if the "Fuel Proofer" attacks the paint. I was caught out when EU legislation caused a paint manufacturer to change the chemical composition of a product so that the brand of fuel proofer I had been using successfully for many years now acts as a paint stripper.

Acrylic Paints

Acrylic paints are water-based and fast drying. They have become very popular as they have a huge advantage in ease of brush cleaning.

Paints with finely ground pigments were developed for use on plastic model kits but can also be used on other substrates. They can be applied to a wide range of surfaces including most plastics, wood, glass, ceramics, metal, cardboard, sealed plaster and sealed hardboard.

Acrylic paints have an acrylic resin binder and use water or alcohol as a thinner and are available in Matt, satin, gloss, metallic and clear finishes. They are easy to use, permanent and quick drying, and may be applied with a brush straight from the tin or airbrushed with a suitable thinner such as water. A common thinning ratio is two parts paint to one of thinner. If you are using a brush you may find that it is necessary to clean it from time to time while painting as it can “clog up”

Typical drying times are 1-2 hours to become ‘hard dry’, and longer for Gloss and Metallic finishes. Manufacturers claim that these paints may be applied over a model enamel when it is completely hardened.

Brushes may be cleaned after use with Acrylic Thinners or water when wet, or with cellulose thinners when dry.

Cellulose Paints

These are commonly available as car touch up paints and are made up using cellulose thinners, so should be used in well ventilated conditions. The thinners are inflammable, so take suitable precautions when using them. Cellulose paints can not be used over oil based paints.

Problems can occur when using these paints on plastics as the thinners may attack the plastic causing cracking or crinkling.

Cellulose paints are not “hot fuel proof” so will require coating with a “Fuel Proofing” varnish if used on a model with a diesel or glow-plug engine. Always make up a test piece to check if the “Fuel Proofer” attacks the paint.

Epoxy Paints

These paints are less commonly used these days, but are available as a clear varnish, or in a variety of solid colours and provide a hard, fuel proof finish which can be polished to a high gloss. They are usually a two-pack thermal setting system: hardener and resin are mixed just before use as they have a shortish pot life which is highly depends on the ambient temperature. They can be applied by brush, roller or sprayed on using the manufacturers thinner to get the required consistency. It is usually recommended that they should be used at temperatures of around 20°C (70°F), but not below 10°C (50°F). Drying time (which is dependent on ambient temperature) is quoted as 30 minutes to 4 hours to reach “touch dry” and 4 days to a week to reach full rated hardness.

Surface Preparation

This is important if you wish to get a good finish. Surfaces must be absolutely clean and free of dust and grease. It is a good idea to apply two or three coats of a suitable thin undercoat, probably matt white, with light sanding between coats. This act as a sealer for areas of filler material and will show up any greasy patches or surface defects which can then be rectified. Always use a “Tack Cloth” to remove all traces of dust. This is a specialized type of gauze wiping cloth that is treated with a tacky material, designed to remove loose particles of dust, from a surface that is to be painted, obtainable fairly cheaply on Ebay.



Primers

Primer paint is a preliminary layer of coating that is applied on the materials prior applying the finishing coats. It helps paint adhesion to the surface and enhances the durability of the paint. Primers often contain a filler which can deal with blemishes and also seal the pores of permeable materials.

Sanding Sealer

This is a Xylene based cellulose paint with talc added as a filler. It is often used as a primer-surfacer on soft or porous wooden surfaces such as balsa. It can then be sanded with fine wet and dry paper to get a harder smooth surface which will give an excellent finish on subsequent painting. This process produces a fine dust which must be removed using a “Tack Cloth” before painting.

Sanding Sealer should be used sparingly on thin wood as it has a high shrinkage, which will cause the surface to buckle.

To sand in difficult places it often helps to use a small piece of sandpaper with a “handle” made from a bit of Cellotape attached to the back.



Masking

Most folk are familiar with masking tape, having used it while home decorating. Common masking tape does not leave an absolutely clean line as paint creeps under the tape along the corrugations. Special masking tape for models, such as that marketed by Tamiya is far better in this respect.

It is important to keep your reel of tape clean. The edges are prone to picking up any dust which is around which prevent you from getting a clean line. If the tape is supplied in a container, put the reel back in when you have used it. Be careful about just laying it down on the bench, as the edges will soon get fluffy. As a corollary, keep your bench clean when painting.



The adhesive level of the tapes can also be a problem, with some cheaper tapes pulling paint off as they are removed.

A common problem is paint leaking under the tape. To minimise the risk of this happening, first of all make sure that the surface to be painted is absolutely clean and free from dust and that the preceding layer of paint is dry. Then apply the tape and burnish down the edge. Apply a thin coat of the paint from the preceding layer. If any leakage is going to occur, it will match what you have already applied. Then you can spray on the top coat.

Do not try to apply too much paint to the surface. Use light coats allowing each to partially dry before the next is applied. When spraying, never spray paint directly at the edge of the tape. Spray at right angles to the surface, or obliquely from the tape towards the surface area to be covered so that there is less tendency for the tape to lift. Use a lower spray pressure as too much air may cause the tape to lift even if it has been burnished down.

Masking fluids, such as Humbrol Maskol or Revell Color Stop can be very useful if sharp curves are required. These are a latex solutions which can be painted on to mask small areas. Once dried they can be cut with a scalpel and unwanted parts peeled off to get finer detail. You can then spray over the area, and peel off the latex once the paint has dried. Masking fluid can be used in conjunction with masking tape.

Do not leave masking tape in position for too long. The longer you leave it, the more likely it is to strip paint when you remove it.



Using Water Slide Transfers

Transfers should really be applied to a gloss painted finish to obtain intimate contact with the surface, otherwise you will get a cloudy appearance under the transparent backing . They require to be covered by a protecting coat of clear varnish to make them waterproof. This should be compatible with the base colour coating, so use an enamel varnish on enamel paint and acrylic varnish on acrylic paint. Never use a Xylene based varnish as this will dissolve the transfer backing. If the model requires an overall matt finish, the best method is to use gloss paints for the colour coats so that the transfers will adhere well, then use a matt varnish for the sealing coat to provide the required texture.

When applying the transfer, first cut it out the section from the backing sheet, and float it on the surface of some lukewarm water. After a short time the backing will curl, the flatten out again.

Using tweezers, lift the transfer, still on its backing, and remove surplus water on a piece of kitchen towel, then place it in position. Using a clean soft paintbrush, slide the transfer off the backing and into position. Using a handkerchief, dab it to remove air bubbles and leave it to dry. On no account try to speed up the process by applying heat as this will probably cause the transfer to shrivel up.

It is said that products such as Humbrol Decalfix and Revell Decal Soft can be used to soften transfers and help them conform to curved or embossed surfaces. If you really need these, they should be used as described in the manufacturers instructions.

Brushes

Cheap bushes are generally a poor buy. The bristles will probably be constantly coming out, and you will probably have a poor brush shape. Good brushes will have a longer life if you look after them.

If you buy a decent brush, it is best to wash it in warm water before use to remove any starch and loose hairs. Then smooth the bristles into a fine point and allow them to dry, storing the brush vertically on a piece of wood with holes drilled to accept various size brushes.

As soon as possible after use, wash them in the appropriate thinner or brush cleaner fluid, followed by soap and water to remove the last traces of paint. Then, once again, smooth the bristles into a fine point and allow the brush to dry, stored vertically.

The information given in this data sheet is given in good faith and is believed to be correct. However no liability can be accepted for any damage caused by following any advice given in the sheet.

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