Track Planning Services

Keeping It Together as a Model Railroader

The art of being a good modeller is to keep your projects intact during construction and ensure they remain complete when sitting on the layout. Modellers need to know their glues! In this short article you will read about one modellers use of the various fixatives available and useful techniques for good gluing.

Working with various materials means we need to understand what will stick to what and what won't. Rather than experimenting with the materials we use the following information may save time and ensure integrity of the model we are building. First task is an understanding of the materials we use.

A Basket of glues used by the author

There are a variety of materials available, some of which can be glued to each other and some that cannot.

In modelling the most common plastics are styrene and PVC (polyvinyl chloride). Styrene is the plastic of most kits sold in boxes or plastic bags. They are the typical "model airplane' plastics of our youth. When we glue these plastics together we are actually using a welding process.The glue is a solvent that 'melts' the pieces together at the place where we apply the glue.

The glue is methyl ethyl ketone or MEK. This glue is available in many forms and container, some with their own applicators and some with large open tops. MEK can be applied through a fine syringe type probe directly into a joint (products from Humbrol and Revel) or can be used with a fine paint brush onto the back of joints. MEK will move by capillary action into the join and if applied sparingly will not mark the outside of the model. When incorrectly applied or applied in copious quantities the MEK softens and leaves a ridge or mark from oversupply. MEK is volatile and evaporates quickly; so it needs to be kept in a closed and cool place.

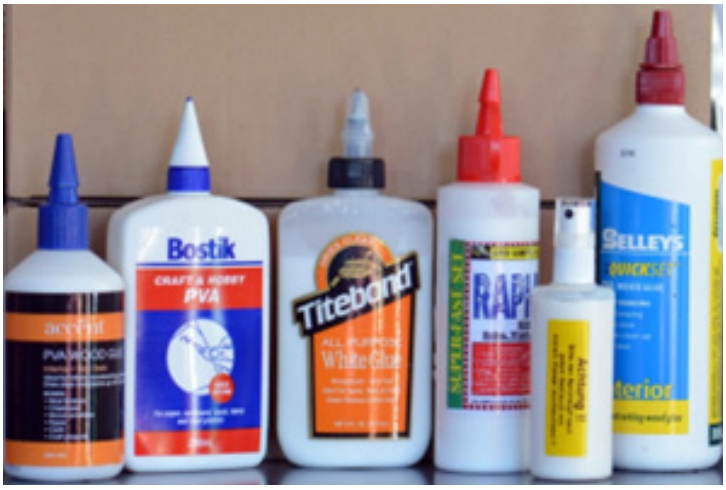
MEK and Super Glues

It is not possible to use MEK on some plastics such as Delrin (typically used to make 'plastic' bogies or loco hand rails). There is no real glue of choice for Delrin (acetal) but roughing the surface and using two part epoxy (such as Araldite) is a reasonable option if no stress or tension is applied.

One of the most common modellers' glues is PVA, white glue or polyvinyl acetate. This glue has found favour with modellers laying track, constructing wooden kits, fixing ground cover to base boards and other scenery jobs. In its normal form it is white but dries clear. It is water soluble and can be 'thinned' down (anything from a 20% to 75% solution) depending on its usage. In low concentrations PVA can be used as a spray or drip for setting track ballast and aggregating other loose landscaping materials.

Some white glue is marketed specifically for quick and strong wood bonds and others are quick setting

where strength in the short term is not important. PVA glues are not the glues of choice on plastics, polyurethanes, clear plastics, glass or metals



PVA glues are available in a wide range of formulations

With the advent of super glues or cyanoacrylates (CA) modellers have been given a broad spectrum glue that works on a variety of materials. CA works by bonding many disparate materials; metals, plastics, polyurethanes, including porous materials such as wood. Using CA is more demanding than other types of glues. Parts to be bonded must be precisely located into their final position. There is very little time for the modeller to move the parts once they are brought together. This problem can be overcome by precisely locating parts before applying the glue.

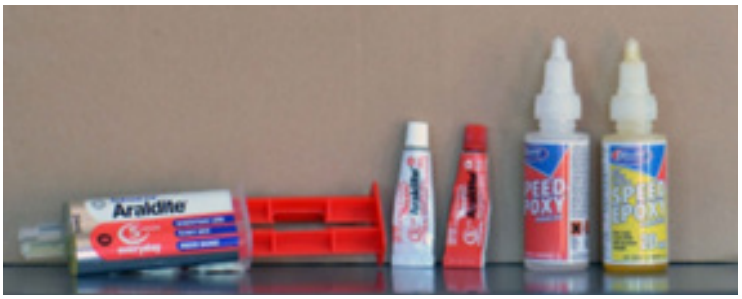
CA glues should be applied sparingly. They will move into a gap by capillary action but too much glue will not dry to form permanent bonds. Applying CA's is best done with a pin, piece of wire or toothpick. Where there is a lot of joining to be carried out at the same time, squeeze a drop of CA onto a piece of glass and transfer small drops of glue to the job by working quickly before the blob of glue sets. [The glue is easily removed from glass by scraping with a blade.]

Regular CA is not recommended as filler but can be used in fine gaps; particularly useful prior to airbrushing. To use CA glues as filler for larger gaps first add baking soda (sodium bicarbonate) into the gap and then add CA.

There are distinct disadvantages in using CA's including the problem of bonding your fingers to each other or to parts of your model. CA glues were developed for use in human plastic surgery and binding your eyelids together or your thumb to your forefinger is what they are all about.

Once the CA has made its bond moving the parts into another position is virtually impossible. Joins using CA are not particularly strong in a lateral sense and bonds can be broken by moving parts across each other. Herein lies another problem. CA material remaining on broken parts must be filed to create an original surface otherwise the parts will stand proud of each other.

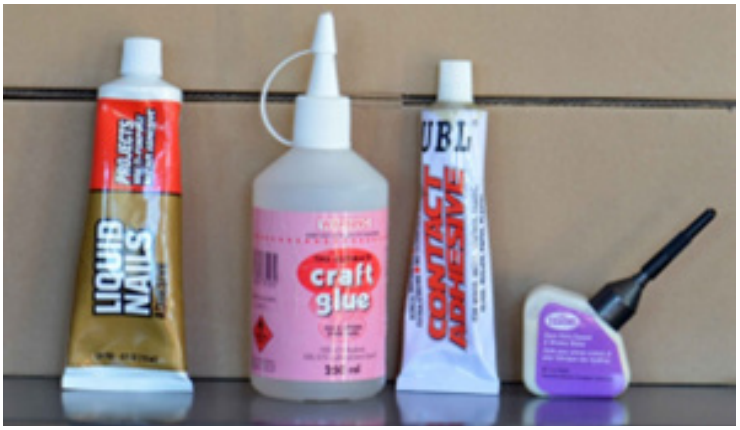
The two part epoxy glues mentioned earlier provide a bond with strength. In some situations a join can be made with CA but strength can be added later using epoxy glues. Epoxy's can be used on a variety of materials similar to CA's but take from 5 mins to 1 day to set.



Epoxy glues are typically in two parts

Glue for fixing clear (window) materials is "Craft Glue". This is an acetone based hydrocarbon that is easy to work but dries very quickly. For its purpose it does not move about the job even if over applied. It is easily removed (with a toothpick) if it intrudes into the viewing panes of windows. If there are many windows to be set this glue can be spotted onto glass and placed in situ with a toothpick. If the glue starts to dry in its container, more acetone can be added, shaken and will resurrect to its original consistency.

Other useful glues include contact adhesives and many builders' glues. Contact adhesives are often the glue of choice when bonding materials together to form a large or flat surface such as fixing scenery mat to wooden base boards. Contact adhesive works best when glue is applied to both surfaces to be joined. These glues are often yellow coloured and overflow needs to be removed.



"Liquid nails', craft glue, contact cement and window glue

Modern builder's glues are becoming more common in modelling. There are two distinct solvents that make the choice of the right glue important. Some of these glues or 'liquid nails' are solvent based. The solvent based glues are good for fixing track to base boards without using nails. Temporary pins are used to arrange the track onto beads of glue before placing the track. When fixing large pieces of polystyrene blocks together for landscaping the correct glue must be water based to avoid the problem of the glue eating into the blocks.

Builder's glues are useful when fixing metals to models such as corrugated roofing onto wooden frames. The working time with the glue is sufficient to allow movement of the iron before final positioning. Clean-up with these glues with a toothpick while still wet or a sharp scratching tool if there is dry overflow. These glues are commonly coloured so you can see where they have been applied. They typically do not dry clear.

..... modellers need to know their glues .....

This is a brief introduction to gluing for modellers. One of the most important aspects of good gluing is 'how much squeezes from joins"! Careful gluing saves clean-up, repositioning of parts or external damage to the model. Like the adage "measure 10 times and cut once", gluing has the same demands on accuracy for a good result.

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