paint vintage

Although, unlike wine, we are unlikely to have a dedicated room for the storage and continuing well-being of paint, we do have a habit of collecting and 'hanging on' to it – notwithstanding the excellent return service that Resene Paintwise provides.

We all know that the bit of leftover paint in the can; the full can that was surplus to requirements or the full can that we simply never got round to applying; will come in handy one day. The unknown is whether, when that day comes round, the paint will still be fit for use or will it be past its 'use by' date; How long does paint last in the can?

The answer is "how long is a piece of string?" However before you screw this up and aim it somewhere, here are a few things to help you decide for yourself if it is 'fit for purpose'.

For starters, you can forget about paint cans of pre-mixed two pack coatings and moisture-cured products. Sorry to insult your intelligence but I needed to get it out of the way! Also it is prudent not to try to rescue product in badly corroded containers.

We'll deal with solventborne enamels and varnishes first as they are the simplest. One of the enemies here, particularly in unopened cans, is gravity. The specific gravity of a solventborne enamel binder solution is quite low – about 0.9. The specific gravity of the lightest organic pigment is about 1.4; extender pigments and flatting agents 2-3 and for inorganic pigments such as titanium dioxide, iron oxide etc it is 4-5. Even though the paint chemist has tricks to help beat gravity, settling is a problem.

Settling can vary from soft, easily re-incorporated to dense and hard. Getting good re-incorporation of the latter is the key to reinstating a usable paint. First decant the supernatant liquid; break up the 'cake' in the bottom of the can with a broad knife and stir vigorously, preferably with a drill mixer (with the tin well secured) adding the liquid part back in very small amounts. Do not add further liquid until a smooth paste has been achieved with the existing blend. If a smooth bit-free paste can be achieved, then the paint should be usable.

Some enamel paints, particularly (but not solely confined to) black, experience a loss of dry due to drier absorption onto the pigment surface. Slow drying is only a nuisance, not a calamity and still results in useful films (providing it doesn't get covered in insects and dust during the prolonged drying period). Drying can be sped up by the application of heat or by the judicious addition of small amounts of 'terebine' driers.

Part cans are particularly vulnerable to 'skinning'. All enamel binders want to start curing on contact with oxygen in the air. Enamels contain volatile 'anti-skinning' agents to prevent premature curing. These are more or less lost during the application process. When a part-filled can is stored, the binder will react with the air in the void in the can and 'skin'. Ironically the harder the skin the better, as it is easily removed and, more importantly, provides a good air barrier to the paint underneath. (Skinning is naturally more severe when dried paint in the rim of the can precludes the lid from fitting tightly.)

In such circumstances, the skin can be cleanly removed with a knife, after stirring; the paint can be successfully re-used. With some formulations a hard skin does not form and the oxygen permeates the bulk of the paint (or varnish) causing it to gel. Although tempting, such paints should be jettisoned. I say tempting because there exists the possibility of using large doses of strong solvents to recover them. If paint cannot be recovered with 10% of its recommended solvent then it is beyond redemption.

Waterborne systems are more complex but the outcome is generally one of two problems.

The most significant problem is loss of colloidal stability, which results in increasing viscosity either in localised centres (leading to 'bits') or uniformly proceeding from very thick liquids, to gels, to solid intractable masses. There are many possible reactions leading to this sort of instability and it is one of the tasks of the paint chemist to prevent it by wise formulating. This instability may be seen as an excess thickening in what appears to be perfectly normal paint or a 'phase separated' paint, which has a watery layer at the top and a thick layer underneath.

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There is a simple rule of thumb! If the gelled material, when rubbed out between the thumb and forefinger, rubs out smoothly, the paint is recoverable. If however, the gel balls up into rubbery particles, it is past it!

In the former case the product can be re-mixed using the guide given above.

The second problem for waterborne paints is bacterial attack. Bacteria will inhabit any watery environment and paint is no exception. Without the presence of preservative, paints would be extremely vulnerable. As waterborne paints have become more and more benign to humans, bacteria have also enjoyed the hospitality offered making the role of the preservatives more critical.

The acrylic polymer particles and the pigments are pretty much immune to damage from bacteria but critical parts of the formulations such as some thickeners and many dispersants and stabilisers are prone. Paints, as they leave the factory, should be stable for years in unopened cans but once the can is open bacteria can enter from the air, thinning water and from the surface being painted. As the bacteria burden increases, the preservative becomes expended and loses its ability to protect. For this reason, it is prudent to work from a separate paint pot keeping the main container tightly sealed at all times and, when finished (even though it may go against the grain), discard the unused material in the paint pot.

Mild infestations do not seriously impair the ability of paint to perform but the inevitable odour, which invariably accompanies bacterial growth, may persist. Heavier infestations will generally result in phase separation and gelled sediment, which is best to jettison.

Although the above sounds somewhat daunting, I have used paints of both types, which have been over 20 years old.

Interestingly, with regards to bacteria resistance, the keeping properties of paint are directly opposite to wine in the fact that whites keep better than reds! It seems, from years of observations, that the large quantities of titanium dioxide in white paints have an inhibitory effect on bacteria. The taste doesn't improve though!

If you have paint that is no longer suitable for use or needed, see the Resene website, www.resene.com/paintwise.htm.