

DELUXE MATERIALS TISSUE PASTE

Andy Sephton helps with the development of a new formula for the most traditional of products.

At one of the ModelAir Old Warden meetings last year, I was approached by the AeroModeller editor, Andrew Boddington, and asked if I'd like to try out and test some new formulae tissue paste from Deluxe Materials. I took the samples and contacted the manufacturer, John Bristow, and there began a rather interesting journey that led through several development iterations.

So, how does one review tissue paste? Does it stick tissue to balsa? Well....hmmm, yes it does! End of story? No, not really... rather, it's just the beginning.

After a great deal of thought, I decided to write a list of what I wanted from an ideal tissue paste:

- The paste should come in an easy to handle bottle.
- The spout shouldn't clog with dried paste.
- The spout should be relatively long and narrow so that I can put it on the airframe with some precision.
- The paste should be coloured so that I can see where I've put it, but it should dry clear so that it doesn't discolour tissue or model.
- I should be able to spread it easily and thinly with a finger.
- I want it to have a good grab so that

the tissue remains where I place it on the model as I'm teasing it around the frame.

- My fingers shouldn't stick to the tissue as I'm working it.
- I should be able to slide the tissue over the frame as I'm stretching it into position.
- I should be able to lift and replace/reposition the tissue within a short time after placing it on the frame.
- I want to be able to cover with both wet and dry tissue.
- I want the paste to dry relatively quickly after the tissue has been set in place.
- I should be able to trim the tissue using a razor blade or sandpaper.
- The tissue paste should be stable when water shrinking, and doping, whether with Eze Dope or cellulose.
- The paste should not be excessively heavy.
- And finally, when the tissue is old and rotten, I want to be able to remove it from the model with ease.

It's a rather stringent list, and in some cases the demands are contradictory, but it served as a starter.

During the development of the paste, Deluxe Materials were absolute stars. They not only listened to my rather pedantic comments, but they also did something about it. In the end I believe they've made a very good compromise in their final brew. So now,

let's get on with the review!

As far as the weight of the product goes, I made a few test frames and covered them with light and heavyweight tissue using both cellulose dope and the tissue paste to stick the tissue. There was no discernible difference in the weight of either adhesive in each case.

I decided to try two models to test the tissue paste: a Vintage Model Co. Me109 and one of my own designs which is kitted by SAMS Models – the electric FF Pippit which I converted to RC. The latter would be built and doped with cellulose based materials, the former with Deluxe Materials adhesives and finishes. Both would be covered using Deluxe Materials new tissue paste.

For the most part, the paste performed outstandingly well. The bottle was easy to handle and the paste was easy to apply with precision. A good example of the latter was the top surface of the wing of the 109 around its leading edge, where the tissue should adhere to the front, but not the top. It was a relatively straightforward task to get the paste where I wanted it rather than where I didn't. Furthermore, I could see where I'd applied it and it spread easily. I noted later that it dried clear and there was no evidence of the paste clogging the bottle spout.

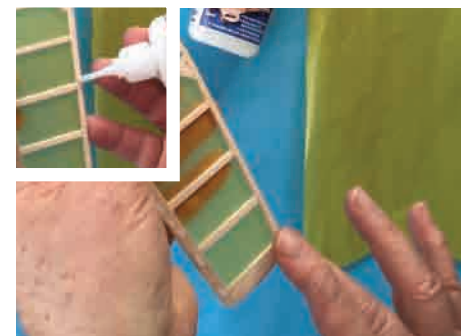
After spreading the paste, the tissue did stick to my fingers occasionally, but I got around that by keeping a bit of paper towel handy for a quick wipe before putting the



Development test panels for Deluxe Materials Tissue Paste experimental formulae. This looked at adhesive behavior.

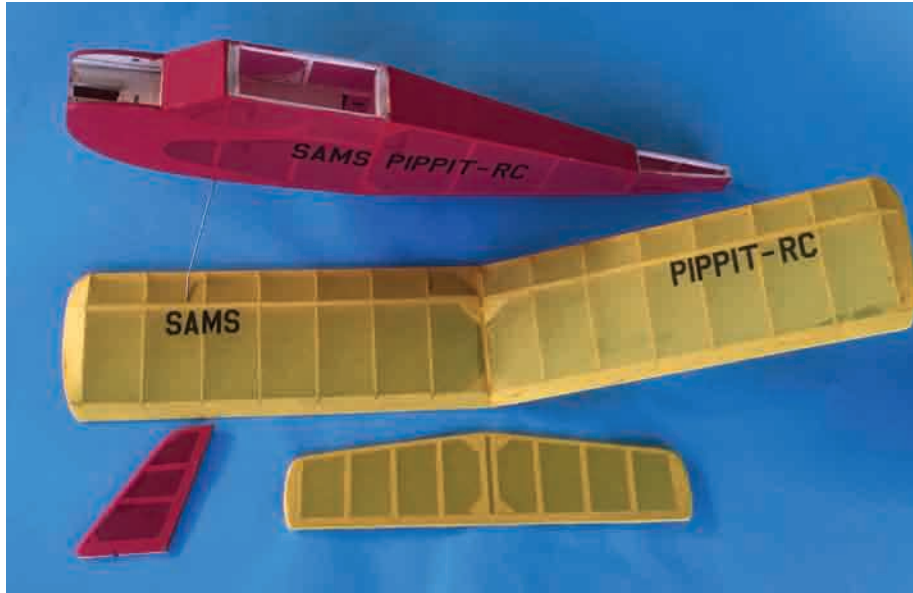


Test panels ready glued and dried for evaluation.



The new tissue paste is easy to dispense from the long spout and spread with a finger.

The Pippit looking good ready for doping after the Tissue Paste has done its job.



tissue onto the model. The paste certainly grabbed the tissue as it was laid on the airframe but I could still slide it around if required for positioning. The tissue was also easily lifted and replaced, provided it was done expediently and before the paste dried. In most cases the paste was dry enough to trim within an hour of application, which worked for me. For all the tissue applications I made sure I spread the paste a little way around the edge of the item I was covering. I then teased the tissue over the edge, helping a little with a water-wetted finger where appropriate, and then, with one exception, left it to dry. I then either cut the tissue to size with a new razor blade, or gently sanded the edge to remove the excess. Both methods worked well once the paste was dry. The exception was to wet the overlap of tissue to weaken it, then tear it along the edge of the frame as the tissue was being applied. Again, this worked well.

I tried covering both wet and dry and both worked without problems with the Esaki tissue. For example, I sprayed the tissue covering the upper wing tips of the Pippit with water and stretched the tissue around the tips to pull out the wrinkles. On both wingtips it worked well, the tissue drying without wrinkles. Using yellow Esaki on the 109 nose block, I rubbed tissue paste over the front and sides, then pulled dampened

tissue over the front and twisted it together at the back, to pull it over the block, much in the same way as one would wrap a toffee apple. This stretched the tissue and allowed it to conform to the shape of the block. When dry, the excess tissue was cut and sanded off the back of the block. Again, the technique worked well.

On both models I noticed that slight wrinkles appeared where the tissue was wetted by the tissue paste. However, they all disappeared as the paste dried in a similar way to when water shrinking tissue.

Water shrinking and/or steaming worked as expected; the tissue didn't lift off the airframe. Doping with both traditional cellulose and Deluxe Materials Eze Dope also worked well; again there was no evidence of the tissue lifting off the models.

The one area that needed care was due to tissue quality - that supplied in the Vintage Model Co's Me109 kit had no wet strength. This meant that I had to cover dry. There was also an issue when rubbing the tissue down over the paste as the tissue tended to break up if given anything more than a gentle rub. It also sagged when wetted so care was needed to prevent the two sides sticking together, especially when Eze Doped. Further, Eze Dope couldn't be 'brushed out' for fear of the tissue ripping. This led to the top surface of the 109's wing being stripped

Info

The Pippit is available from SAMS models 01480 394474 www.samsmodels.com. Deluxe Materials New Formula Tissue Paste is £5.75 and is distributed to all good model shops (including of course SAMS Models) by Ripmax.

and recovered with Esaki tissue. During that exercise, I found that steaming and/or soaking the old tissue in a 33% solution of Eze Dope did soften the tissue paste a little, but, as the tissue was breaking up when wetted, I resorted to sanding it off the wood. The upper surfaces of the wings were then recovered in green Esaki tissue with no further problems. To match the wings, I also covered the 109's tail upper surface in green Esaki. There was no such issue on the Pippit, which was covered in its entirety with Esaki tissue including the solid elevators, rudder and nose of the aircraft. Prior to covering, the only finishing I did on the bare wood was a light sanding. I then applied a liberal coat of tissue paste and then the tissue. The resulting finish was quite acceptable.

The instructions for the 109 advise the use of a glue stick to fix tissue to 80 gsm notepaper on the nose area of the model. This didn't work too well in practice, so I helped the process along with judicious applications of tissue paste. Again, the paste worked just fine. Tissue paste was also used to stick the markings on the model (supplied in the kit printed onto lightweight notepaper), again this proved to be successful.

The proof of the pudding is in the eating, so both models had to fly. I'm pleased to say that they were both successfully trimmed at the Peterborough Club's Indoor Meeting in early January. Neither model showed any damage after the event.

In conclusion, I believe Deluxe Materials have produced an excellent product in their new tissue paste and I would encourage you to try it. The next issue of AeroModeller will take you step-by-step through the best way of covering using the Tissue Paste. ●



Spreading the paste - it will hold tissue around corners



Place the paper onto the airframe.



The tissue paste has dried without discoloring the paper.

COVERING WITH TISSUE PASTE - AN OLD FORMULA RE-INVENTED

Andy Sephton gives some hints on tissue covering by using the new formula Deluxe Materials Tissue Paste.

Having worked closely with John Bristow at Deluxe Materials to guide the new formulation tissue paste, it was the obvious product to use for this step by step guide to covering with tissue. I used Eze Dope for the final airproofing and tautening of the tissue on the Me109 kit from the Vintage Model Co, but I also found that traditional cellulose dope could be used with this paste.

PHOTO 1: The Me109 is a challenging cover because of its compound curves on the fuselage, tips and scoops. Andy used his own coloured Esaki tissue (available from SAMS Models, Flitehook or FF Supplies) to cover the model

The Vintage Model Co. Me109 is one of their Magnificent Flying Machine range of new design laser cut kits
www.vintagemodelcompany.com

A 50ml bottle of New Formula Tissue Paste is priced at £5.75 and is distributed to all good model shops by Ripmax in the UK and Horizon Hobby in the USA
www.deluxematerials.com



because of the colour range and wet strength.

PHOTO 2: Andy used Aliphatic resin for construction as it has fast grab (but unlike cyano gives time to adjust the joint) and sands nicely. Pouring a little in to a container and applying with a cocktail stick helps keep the weight down.

PHOTO 3: Bare wood parts had a final shaping with sandpaper and were coated with Deluxe Materials Sand and Seal to give a smooth surface ready for tissue covering.

PHOTO 4: The tissue is cut to shape. For a scale model like the Me109 the underside tissue colour is different from the top.

PHOTO 5: The Tissue Paste is dispensed from the long spout on to the outer edges of the frame. Only when covering an undercambered structure would you need to apply the paste all over the structure.

PHOTO 6: The paste is easy to spread with a finger, and is opaque enough to see where you have put it. Keep a paper towel handy to wipe off the excess.

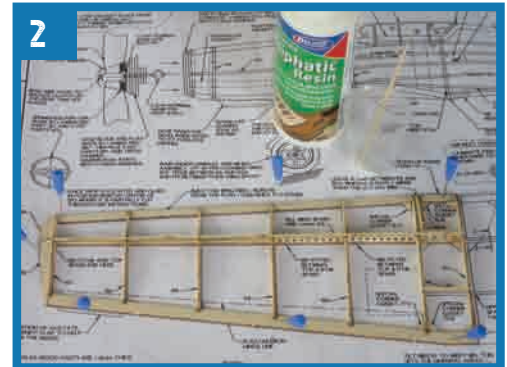
PHOTO 7: Tissue Paste is spread around corners where it is designed to hold well.

PHOTO 8: The airframe is placed onto the tissue paper. Here the tissue is applied dry which makes it slightly easier to handle – later it will be tightened with a mist of water.

PHOTO 9: The tissue paste has good grab allowing it to be teased easily around tight corners. Small wrinkles in the paste wetted tissue usually disappear on drying.

PHOTO 10A AND 10B: Once the tissue paste is dry (about 1 hour), trim the excess tissue by light sanding to a neat edge (or use a scalpel blade). You are now ready to cover the other side. The tissue paste dries 'clear'.

PHOTO 11: Dealing with the compound curves on the wing upper surface. Paste was applied around the edges and the tissue slid into position - wrinkles at the wingtip are removed by 'slight' pulling and rubbing of the surface, but do avoid tearing the tissue.





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PHOTO 12: When covering the fuselage, you may be able to use two pieces of tissue for the main run, but if you find this too difficult then plan overlaps to occur along a stringer. Once all sides have been covered and the tissue paste has set, apply a spray of water (or a 10% solution of Eze Dope in water) onto the covering to tauten the tissue.

PHOTO 13: By careful cutting of the tissue, Andy used two colours of tissue to cover the fin and rudder in his chosen Me109 markings.

PHOTO 14: When flat components are being shrunk on both sides (by water mist or later by dope) and are almost dry, do pin them down for final drying to prevent them warping. Alternative methods include using carefully placed weights on the edges of the flat surfaces on a horizontal board.

PHOTO 15: Air intakes were tissue covered with the paste. If your tissue has plenty of 'wet strength', mist the cut tissue first with a light water spray – this will make the tissue easier to work around compound curves.

PHOTO 16: The cockpit canopy and associated 'metalwork' (cut from tissue stuck on notepaper with Tissue Paste) were bonded with RC Modeller's glue which gap fills, and dries clear.

PHOTO 17: The model was then finished with one coat of Eze Dope solution (30% Eze dope, 70% water) on the wings, tailplane and fin and two coats on the fuselage. This left the matt finish I wanted. At this stage further coats can be added if desired to build satin or gloss finish, but at a weight penalty.

PHOTO 18: The finished ready to fly model with rubber power installed.

After trimming and the addition of some 3.8gm of nose weight, the Me109 weighed in at 31.4 gm. including a 35cm loop of 5mm (0.197") tan super sport rubber. The fuselage had had two coats of the thinned Eze Dope and the flying surfaces one. Trimming for flight required slight left rudder and a mite of wash-in on the port wing, both warps being achieved by light steaming with no detriment to the covering. The model has flown well indoors. ●