

How to Mix custom coolants

Antony Leather shows how to create and customise coloured coolants for water-cooling systems

TOTAL PROJECT TIME / 1 HOUR

While there might be one or two high-profile water-cooled PCs with clear coolant doing the rounds on social media and modding forums, the vast majority use coloured coolant, and for good reasons. Firstly, it looks fantastic – whether you’re using clear coolant with dyes or a variation of pastel opaque coolant, the colours focus the attention on your exotic cooling system.

Pastel coolants also have much lower electrical conductivity than plain, water-based coolant so, if your loop should leak, you’ll likely emerge unscathed and ready to try again once your hardware has dried. Using raw distilled water can also damage the nickel plating on some waterblocks.

Coloured coolants can also help to create a vibrant colour scheme, matching the colours of your hardware or your own custom paintwork, so you can create a stand-out, colour-matched PC. In this guide, we’ll look at how to use dyes, pastel coolants and UV additives, as well as how to create your own coolant colours to match your own schemes.

TOOLS YOU’LL NEED



Mayhems coolants and dyes / <https://mayhems.co.uk>



Clear drinking glass, measuring jug and mixing containers / Most supermarkets



Coolant filling bottle / www.aquatuning.co.uk



CREATE COOLANT-PROOF WORKSPACE

The Mayhems dyes we’re using are mostly stain-free, but some surfaces can absorb these liquids. It’s always best to mix your coolants on a waterproof surface, or in a non-staining sink.

USING CLEAR COOLANT



1 / CHOOSE COOLANT

There are several clear coolants available that have additives in them to prevent corrosion, such as Mayhems X1 Clear. You can then mix these clear coolants with dyes to create transparent coloured coolants.



2 / USE CLEAR CONTAINER

When creating your own colours, it’s always best to use a clear container such as a glass jug, giving you a good view of the coolant as you add colours.



3 / ADD DYE

Dyes can be added to both clear and pastel coolants, either to create a single colour or to change an existing colour to a different shade. They can treat several litres of clear coolant, so they also offer decent value for money. We've used an Ocean Blue dye here.



4 / MIX DYES

You can mix colours to create other colours, or to lighten or darken certain shades to create your own custom colour, using just a couple of dye containers. We're starting with an orange dye here.



5 / ADD SECOND COLOUR

Next, we've added a deep red dye to change our coolant to a deeper orange colour, with the eventual aim of creating a deep blood orange.



6 / FINE-TUNE THE SHADE

You can alter the shade further by adding more of either of the previous dyes. Meanwhile, adding more clear coolant will lighten the colour.



7 / ADD FINAL COLOUR

To finish, we've added an Emerald Green dye to the original combination of orange and red to create a dark yellow-orange. This colour will look great in a moody water-cooled PC with clear tubing.

USING BLACK COOLANT



1 / BLACK DYE

Black dye can be used to create a straight black colour using clear coolant, or you can add it to existing colours to darken them.





2 / ADDING COLOURS

You can add colours to a mostly black clear coolant to create deep, rich tones. Here, for example, we've added a red dye to create a dark cherry red colour.



3 / BLACK PASTEL

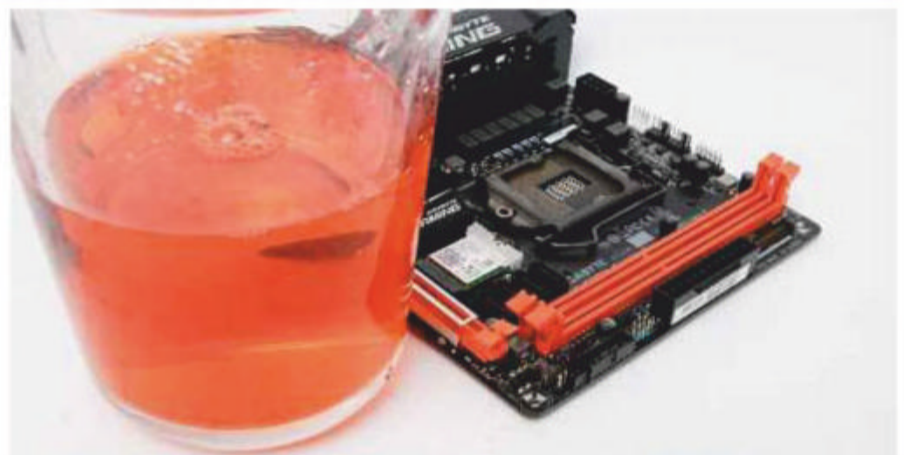
If you want a jet-black coolant, your best bet is an opaque pastel shade, which comes pre-mixed or in a 250ml concentrate bottle that you can add to clear coolant. Adding black dye to other pastel coolants never achieves a decent black.

COLOUR MATCHING



1 / CHOOSE COLOURS

Colour matching your coolant to your hardware can be fun, but be prepared for plenty of trial and error. Use at least two dyes – one for the base colour (we're using orange), and then another one (red in our case) to darken the shade if necessary.



2 / ADD MAIN COLOUR

To start, add a generous amount of the base colour to your clear coolant. If it ends up being too light, add a little more dye to darken it slightly.



3 / ADD EXTRA COLOURS

We found we needed to go a little further to colour match our coolant to the motherboard details, so we added a couple of drops of red dye to create a darker orange colour.

PASTEL COOLANTS



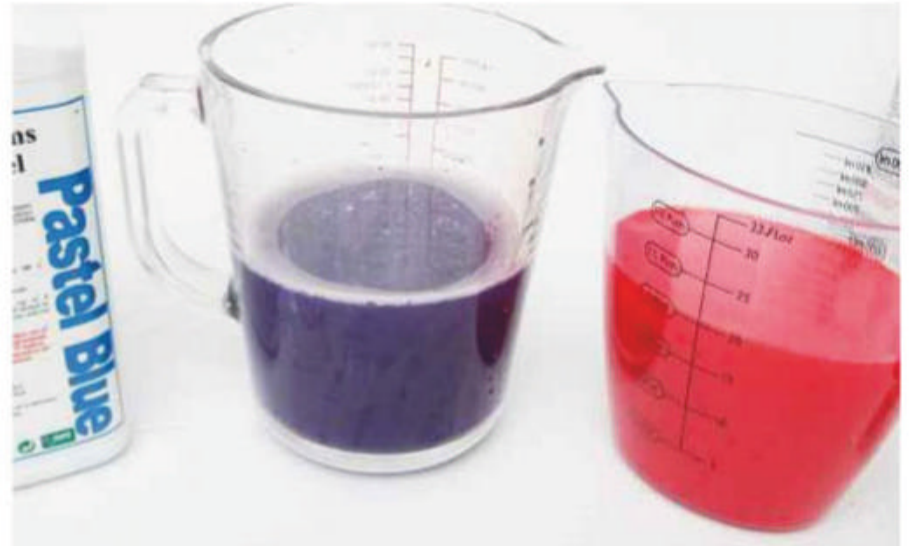
1 / CHOOSE COOLANTS

Pastel coolants are opaque, while dyes and clear coolant are mostly transparent. Pastels come in ready-mixed or concentrate form, with the latter needing to be added to clear coolant first.



2 / USING CONCENTRATES

If you're using a concentrate, start by pouring the pastel colour into your mixing container, then add the clear coolant afterwards.



3 / CUSTOM PASTEL COLOURS

You can combine pastel colours to create other colours. Here, we've added blue and red to create a dark purple. Always test the amounts in small quantities first, as it's easy to use up litres of coolant if you get it wrong.



4 / USING DYES

By using a white pastel coolant, you can lower the cost of mixing by using dyes to create your own pastel colours. Here, we've added some Emerald Green dye to some pre-mixed white pastel coolant.



5 / CREATING DARKER COLOURS

To darken the colours, you can add black dye or black pastel coolant to the mix. We turned our light green into a dark turquoise by adding a few drops of black pastel coolant.



6 / CREATING LIGHTER COLOURS

To create lighter shades, simply add more white pastel coolant. Doing so turned our bright green coolant a light mint green. Most of these colours aren't available off the shelf, so these mixes can provide a great way to make your PC stand out.

MAYHEMS AURORA



1 / NOTE LIMITATIONS

For a temporary snazzy look, Mayhems Aurora coolant has suspended pearlescent particles that look fantastic when they move. However, it doesn't work with all configurations and should only be used for short periods. You can read more on <http://mayhems.co.uk>



2 / READY-MIXED AURORA

The easiest way to use Aurora is to opt for a pre-mixed colour, which is ready to add to a clean water-cooling loop. It's available in a range of colours.



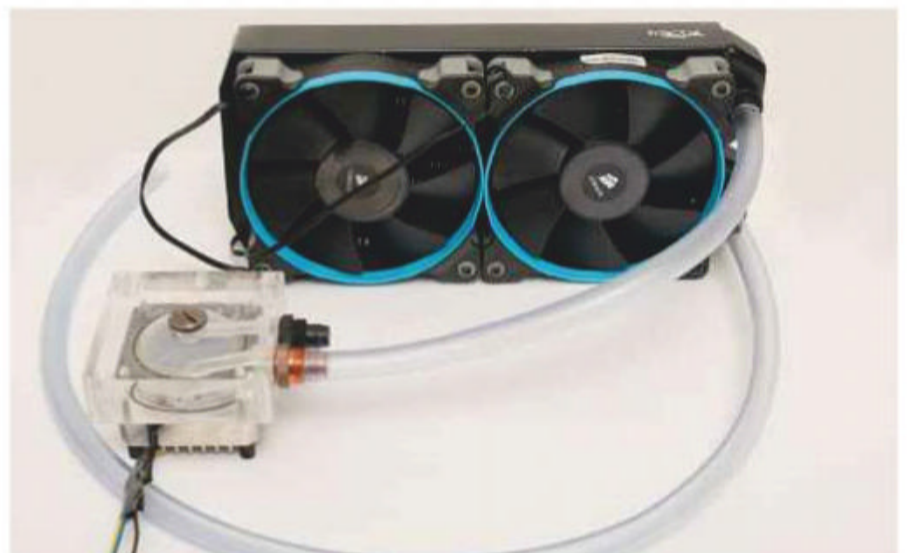
3 / CONCENTRATES AND BOOSTERS

Concentrates can also be added to clear coolant to create Aurora at home. There are also boosters in silver and gold that can top up an existing Aurora loop's pearlescent effect.



4 / CUSTOM AURORA COLOURS

As there are fewer Aurora colours available off the shelf compared with pastels and dyes, you'll likely need to create your own colours. You can use the silver version as a base, and then adding dyes, as we've done here with a purple dye.



5 / REMOVING AURORA

Aurora isn't designed for long-term use, as it can build up in the nooks and crannies of your loop. To fully flush it out after use, hook up each component and section of tubing to a high-power pump, flushing it with deionised water.

UV EFFECTS



1 / CHOOSE COOLANT

There are three options for creating UV coolant – ready-mixed pastel and clear coolants, concentrates, and dyes, with the latter needing to be added to clear coolants or white pastel bases.



2 / UV COLOURS

The coloured UV coolants mostly glow in the same colour as the coolant when exposed to UV light. However, clear and white UV dyes and coolants glow a specific colour in UV light, while appearing either white or clear respectively under normal light. **CPG**

ANTONY LEATHER'S

TOP TOOLS

THE TUBE-BENDING KIT

If you want to kit out your water-cooled PC with rigid tubing, then all your pipes will need to be bent to shape in order to connect the various components, which means you'll need a number of tools. There are several essential tools you'll need when creating an elaborate rigid tube network for your water-cooled PC, but you can find most (if not all) of them in a specific tube-bending kit. The only exceptions will be the tubing itself – either PETG or acrylic – and an industrial heat gun, which looks and works a lot like a high-power hairdryer.

Tube-bending kits include a range of tools for both preparing and finishing your rigid tubing, as well as creating accurate bends, although many of the components can also be bought separately. Alphacool has been kind enough to send us its fabulous Eiskoffer kit for this article, which includes some interesting tools geared towards creating perfect bends in rigid tubing.

Let's start with the fitting stoppers, which anchor the end of the tubing in place while you thread the rest of the tubing through a series of curved mandrels after heating it. Anchoring the tubing is important, because it can change shape before it cools – leaving it to its own devices can mean your tubing doesn't line up in the end.

Meanwhile, the straight mandrels perform a similar task for long straight runs between bends. The tubing can sometimes droop or rise between bends as it's heated and cooled, even if you're working several inches away from your bend, making those straight runs



The deburrer's angled blades score the inner and outer edges of the tubing, removing rough edges



Alphacool's Eiskoffer kit includes all the gear you need, including various mandrels, an insert to prevent kinks and a deburring tool

look terrible, but the straight mandrels mean you can hold them in place. The straight mandrel can also be used as an initial anchor for the end of the tube.

Next are the shaped mandrels, which come in various shapes and sizes to cater for all types of bend, from tight 90-degree turns to gentler 20-degree bends. They usually offer angle guides to follow if you're bending to a degree with a round number, while the rounded mandrels enable you to bend your tubing to your own measurements. Speaking of measuring, you can also use pipe cleaners to work out the angles required, or one of the many tube measuring tools available.

All the mandrels can be anchored to a flat surface using screws, which are included in the kit, so you just need a cheap piece of MDF to create a professional bending rig. Alternatively, Alphacool offers a bending plate with its most prestigious Eiskoffer kit, which includes thumbscrews for precise mandrel anchoring.

To prevent the tube from kinking as you heat and bend it, the kits include inserts for several sizes of rigid tubing. These inserts thread into the tubing to straddle the bend location from the inside. The tube bends

around the insert and, once the tubing has cooled, it can be removed to reveal a perfect bend with no kinks.

You can then use a simple fine-blade hacksaw to cut the tubing – they're even included in some of the pricier kits. However, once it's cut, the tubing will often have rough edges that can prevent it sitting properly in water-cooling fittings, causing leaks and also dumping plastic particles into your coolant. For this reason, a deburring tool is the last essential part of a tube-bending kit. They include angled blades that score the inner and outer edges of the tubing, removing any rough edges and shards, providing you with a smooth surface that can slot cleanly into your fittings. **GPC**



The rounded mandrel enables you to bend tubing to your own measurements, while the straight mandrels prevent rising and drooping