

# Colour Removal



Colour in water is normally due to iron/manganese or organic tannins (often from peaty water). If the colour is due to tannins the colour can be removed either by ion exchange resins or by activated carbon.



## Where does colour come from?

Colour in water (after it has been filtered) is typically caused by either iron and manganese compounds or by organic compounds. If the colour is due to iron or manganese there are specific treatments see the iron and manganese data sheet. If the colour is due to organics then treatment is normally by ion exchange or activated carbon. Organic colour comes from decaying vegetation and may be completely soluble or particulate. Tannins (humic and fumatic acids) are by far the most common class of compounds and give the water a yellow/brown tint. In highland areas where water runs of peat the water can be virtually brown.

## Colour Removal

The two most common forms of colour removal are ion exchange resins or by granular activated carbon (GAC).

### by Ion Exchange

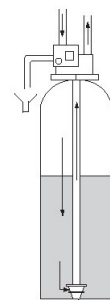
When the water passes through anion resin beads the organic molecules are bound to the resin. When the resin has become saturated and can hold no more colour forming compounds they need to be removed. Resin selection is critical as many require caustic soda to remove the organics. However there are resins available which can be regenerated with brine. This has the advantage of being readily available and safe. Typically every 25 litres of resin will take out 2000ppm of organic colour before it needs regenerating.

### by Granular Activated Carbon

GAC absorbs the organic colour. These systems are particularly useful when the colour levels are low or the amount of water required is low. Once the carbon is exhausted it needs to be discarded and new carbon put in.

## How does it work?

An automatic colour removal ion exchange system consists of a pressure vessel filled with resin. Located on the top of the pressure vessel is the control valve. The water is passed through the control valve and down through the vessel. As the water passes across the resin bed, the colour compounds attach to the resin. Periodically, depending on how much water is used, the resin needs to be refreshed. This is done by flushing a small amount of salt (stored in an external brine tank), through the resin vessel. Once this process has been completed the resin is refreshed and ready to begin again.



Vessel size	C835	C1248	C1354	C1465	C1665	C1865	C2160	C2469	C3072	C3672
Valve Type	263-740	263-740	263-740	263-740	273-742	273-742	Mag 942	273-742	273-742	Mag 942
litres treated at 1ppm	2000	4000	6000	8000	10,000	14,000	18,000	24,000	40,000	56,000
Service flow rate – l/hr	300	600	900	1200	1500	2100	2700	3600	6000	8400
Inlet & outlet connections	1"	1"	1"	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Drain connection	3/4" hose con.	3/4" hose con.	3/4" hose con.	3/4" hose con.	1" hose con	1" hose con	1 1/2"	1 1/2"	1 1/2"	1 1/2"

Crystal Right, Birm, Manganese dioxide, and Greensand kits are also available as are other medias such as pH correction, sand, carbon etc.