# CONTAMINATION CONTROL LIMITED

# Neutralising Filtration

Neutrafil is safe to use

XFN "no backwash" head

TFN manual backwash valve

AFN autobackwash valve

Neutralising filtration involves the use of a sacrificial media to react with corrosive carbon dioxide present in the water from many bores and in rain water stored in plastic or glass fibre tanks.

Dissolved carbon dioxide ($CO_2$) depresses the pH of the water (typically to 5.8 – 6.5) so it is corrosive to copper and brass. This results in green stains on whiteware (particularly under the hot taps) and possibly rapid destruction of the hot water cylinder. The green stains are copper oxide, the copper equivalent of rust.

The solution? Use of a bed of Neutrafil sacrificial media in a pressure vessel installed between the bore or water tank and the property. Referred to as neutralising filtration the process involves the gradual dissolving of the granular media to neutralise the $CO_2$, raising the pH and dramatically reducing the corrosion problem.

The Neutrafil media is made of dolomite limestone granules with a very high surface area. This means that a relatively small amount of the media – typically 15-30kg – will neutralise typical household or farm flow rates.

The media very slowly dissolves and therefore is topped up to the original level (typically 2-3kg) every few months, through a plug in the top of the vessel.

| MODEL | SERVICE FLOW RATE L/min | BACKWASH FLOW RATE L/min | MINIMUM-MAXIMUM OPERATING PRESSURE kPa | INLET OUTLET mm | SHIPPING WEIGHT kg | OPERATING PARAMETERS |
|---|---|---|---|---|---|---|
| XFN7 | 10 - 20 | 10 | 140 - 690 | 20(F) | 25 | WATER TEMP: 5-50°C |
| XFN9 | 20 - 40 | 16 | 140 - 690 | 20(F) | 52 | |
| XFN12 | 40 - 70 | 25 | 140 - 690 | 25(F) | 67 | WATER pH: ABOVE 5.0 |
| TFN7 | 10 - 20 | 10 | 140 - 690 | 25(M) | 25 | |
| TFN9 | 20 - 40 | 16 | 140 - 690 | 25(M) | 52 | SUSPENDED SOLIDS: |
| TFN12 | 40 - 70 | 25 | 140 - 690 | 25(M) | 67 | MAX 50 mg/L |
| AFN7 | 10 - 20 | 10 | 140 - 690 | 25(M) | 27 | |
| AFN9 | 20 - 40 | 16 | 140 - 690 | 25(M) | 54 | OIL: FREE OF |
| AFN12 | 40 - 70 | 25 | 210 - 690 | 25(M) | 69 | HYDROCARBONS |

**WARNING:** A Pressure Reduction Valve should be installed in areas of high water pressure (above 690kPa)
**WARNING:** A water hammer arrestor should be installed if water hammer prevails
FAILURE TO OBSERVE WARNINGS WILL VOID WARRANTY

The exact rise in pH achieved is dependent on water chemistry, the initial pH, flow rate and the amount of media present but Neutrafil does offer a safe, chemical free and reliable method of correcting the corrosion problem, with no risk of chemical exposure or overdosing.

It is important to note that the neutralising media is not intended to act as a sediment filter but used in the conventional manner, the media is backwashed and therefore has some limited capacity for the removal of sediment and iron. This applies to TFN and AFN versions. Fluidised bed XFN versions do not need to be backwashed and are not suitable for sediment removal and in fact are not filters in the conventional sense at all, therefore the XFN versions should only be used on clear water free of iron. A further description of the various models is given below. While the flow rates shown are typical it is essential that a water analysis is carried out to ensure that the correct unit is selected.

## XFN - fluidised bed units

The XFN neutralisers use a fluidised media bed. This means that backwashing is never required making these units the most economical on the market as no backwash valving is required, nor is electricity.

## TFN and AFN - Backwashing units

These models operate in conventional filtration mode and therefore require backwashing. This removes trapped dirt but most importantly reclassifies the media bed avoiding compaction and channelling. Backwashing should be done at least weekly. TFN versions are backwashed by manually turning a valve, AFN models backwash automatically at pre-set times and require electricity.

## Large Scale Treatment

Higher flow rates can be treated by more than one unit or larger models from the Freeflo range. On a large scale it may be more appropriate to dose Soda Ash by metering pump but as this is a caustic chemical it is not recommended for domestic use.

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