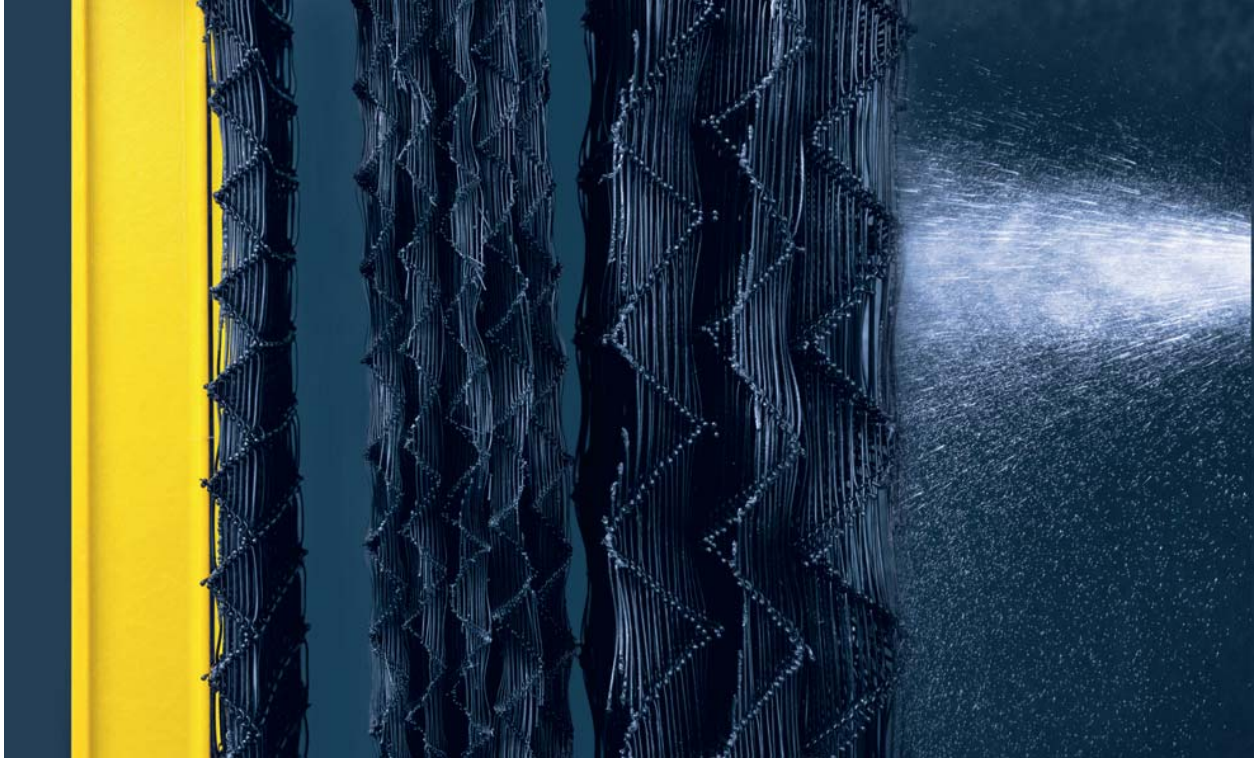




**Begg Cousland**

**World Class Filtration Solutions**



**Begg Cousland + BlueFil®  
Gas Scrubbing Systems**

**BlueFil®  
Mist Elimination Mesh**

## 'PERFECT PARTNERS IN MIST ELIMINATION'

Benvitec Environment in Belgium and Begg Cousland Envirotec in the U.K. announced in early 2016 a co-operation in the field of mist elimination. The Benvitec BlueFil® range of phase separation technology & meshes will now be part of the range of filtration and gas scrubbing solutions offered by Begg Cousland Envirotec, exclusively in certain countries worldwide.

Begg Cousland Envirotec design and manufacture chevron vanes, knitted wire meshpads, fibre bed candle filter type mist eliminators and gas scrubbing technologies under the Begg Cousland brand, world famous for over 60 years.

Now the 2 companies have joined forces to maximise the potential applications of the BlueFil® range, and to offer significant process and quality improvements to users of other materials in scrubbing systems in Fertiliser and general chemical industries. The BlueFil® media will now be incorporated into a new generation of gas cleaning equipment by Begg Cousland Envirotec, even in combination with our 'Becoflex' Scrubber.

## BLUEFIL® SOLUTIONS

Benvitec Environment designs and distributes the thermoplastic BlueFil® mist eliminators.

BlueFil® is a structured mesh, rather pyramid-like with 3D interlocked plastic monofilaments. Between 93% and 97% of these monofilament fibres are perpendicular to the gas flow, which results in a minimised pressure loss, without compromising the high, optimised collection efficiency.

Typically a BlueFil® mesh pad will be composed of multiple layers of various grades of BlueFil® mesh, using different fibre diameters and different pyramidal dimensions, collecting mist particles above 0.5 – 0.8 microns diameter, at velocities of more than 2.5-3 m/sec.

Examples :

- Solution Combination MX 99-10 gives 99% > 10µ
- Solution Combination MX 99-5 gives 99% > 5µ
- Solution Combination MX 99-3 gives 99% > 3µ
- Solution Combination MX 99-2 gives 99% > 2µ
- Solution Combination MX 99-1 gives 99% > 1µ

# BlueFil® SOLUTIONS

General Application	NEW							
	MX095	MX094-H	MX094-L	MX040	MX020	MX010	MX005	
Water / Chemical Mist	X	X	X	X	X	X	X	
Oil / Emulsion Mist	X	X	X	X	X			
Aerosols	X	X	X	X	X	X	X	
Packing	X	X	X	X				
Liquid	X	X	X	X	X	X		
NO LIMIT TO COMBINE SOLUTIONS								
Material		MX094-H	MX094-L	MX040	MX020	MX010	MX005	
PET	White						X	
PP	Dark Blue	X	X	X	X	X		
ETFE	Nature	X	X	X	X	X		
PFA	Nature	X	X	X				
Temperature resistance in continuous service								
PET			99°C					
PP			99°C					
ETFE					149°C			
ETFE EHS						170°C		
PFA							204°C	
		210°F		300°F		338°F		400°F

## HOW

# HOW TO SELECT THE RIGHT FILTER FOR YOU ?

## SULPHURIC ACID INDUSTRY APPLICATIONS

In a Sulphuric Acid Single or Double Absorption contact plant, there are 2 possible duties which BlueFil® could perform, and in Gas Cleaning duty.

### Drying Tower ;

Here the general duty is to capture droplets of H<sub>2</sub>SO<sub>4</sub> entrained from the irrigated random ceramic packing bed below.

Issues which can affect the selection and performance are :

- Potential solids blockage (e.g. insoluble solids entering the Drying Tower due to upstream failure of gas cleaning in metallurgical off-gas or SAR regeneration SO<sub>2</sub> feed, or air inlet filter failure in sulphur burning plant) & (e.g. sulphates or Nitrosyl crystals forming on filter mesh)
- Potential mist sized acid particle presence (e.g. problems with upstream gas cleaning)

The BlueFil® mesh can be installed in a standard horizontal orientation, in a vertical panel orientation (e.g. in the Begg Cousland Vertical Panel design for external safety access), or wrapped in cylindrical form like candle filters. In any form, it can then be strenuously washed and re-used without deforming the mesh.

### (Final) Absorbing Tower :

In an Absorbing Tower there can be small mist sized acid particles to collect as well as droplets, but depending on the tower operation & regime, the efficiency of a BlueFil® pad can be suitable, especially if a downstream SO<sub>2</sub> scrubber or E.S.P. is installed.

### Gas Cleaning Section :

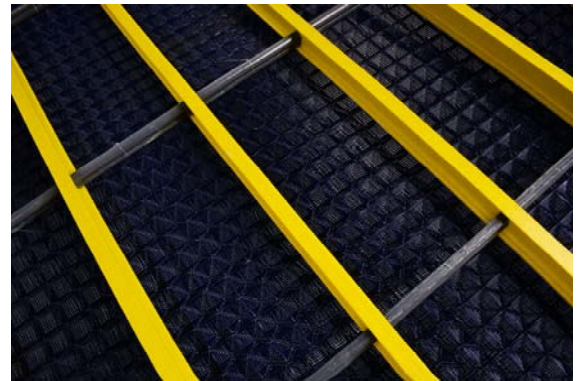
Where the SO<sub>2</sub> gas needs cleaned before entering the Sulphuric Acid Drying Tower, there can be equipment such as Cooling / Quench Towers or Mercury Recovery Towers, which need a Chevron Vane or a strong PP meshpad at the exit, to allow the filter to be washed regularly.

The Begg Cousland SWISS demister design works well, and the BlueFil® mesh pads MX99-10 and MX99-5 are well suited for the efficiency and durability requirements. They are easy to take in and out of the tower without much risk of damage, due to the flexibility of the pad sections.

## CHEMICAL INDUSTRY APPLICATIONS

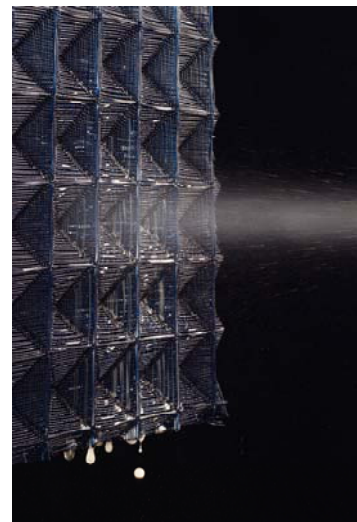


Many chemical processes there are liquids and soluble solids to be removed from gas flows, within a process or at the end before emission. The BlueFil® meshpad solutions can be used by us to make a complete gas scrubbing or filtration system, or to be installed at the exit of an existing gas cleaning plant, to catch droplet sprays.



3 examples of applications where BlueFil® has proved extremely successful are :

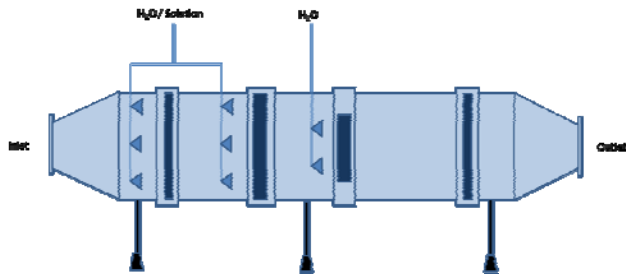
- Heavy Metals / Chrome VI
- HCl in Electronics industry
- Galvanising fumes





## FERTILISER PRODUCTION APPLICATIONS

### For removal & recovery of granulator dusts / prill tower emissions



In Urea and CAN Fertiliser production there is a need to have a fume and dust scrubbing solution that is of course highly efficient, but which also can be washed / maintained, when the inevitable solids build up restricts normal air flow.

Horizontal fume scrubbers as shown above are a well known technology in these industries and now Begg Cousland Envirotec and Benvitec have optimised the system and the key meshpad components to reduce pressure loss and equipment cost. Existing 'cross-flow' type scrubbers can be retrofitted with BlueFil® meshpads to benefit from these factors also.

Combining the Begg Cousland 'Becoflex' Rotary Brush Scrubber and BlueFil® meshpads we can achieve very high efficiencies on mist elimination and minimise risk of solids blockage due to the constant self-cleaning action of the 1<sup>st</sup> stage irrigated brush.

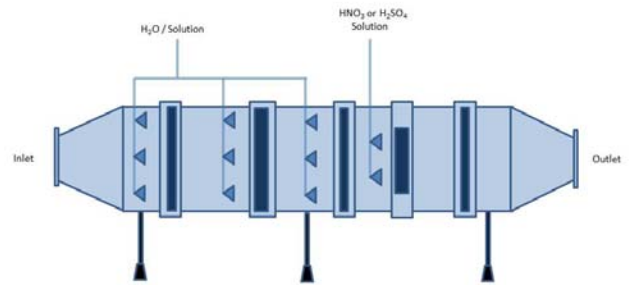
### For DAP Plant Phosphoric Acid Fume Scrubbing



In DAP fertiliser plants the fumes emitted include HF and Phosphoric Acid, which should be abated with a high efficiency filtration / scrubbing system, using a media which minimises pressure loss & maintenance.

Typically 4 stages of BlueFil® mesh can be installed in a horizontal scrubbing tank, with constant irrigation on stages 1-3 to catch the fume & prevent blockage.

### For removal & recovery of granulator dusts / prill tower & ammonia emissions



Begg Cousland Envirotec  
Urea Dust & NH<sub>3</sub> Scrubber (BlueFil)

In Urea and Ammonium Nitrate prilling and granulation duty there can also be scope to scrub residual ammonia gas from the air emissions. In such cases there is an additional irrigated BlueFil® pad stage included, to achieve the most stringent pollution control levels.



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