



Unit 32,
Mere View Industrial Estate,
Yaxley, Cambridgeshire,
PE7 3HS, UK
Tel.: +44-(0)-1733 244224
Fax.: +44-(0)-1733 243344
e-mail: info@ecomesh.eu
www.ecomesh.eu

WATER QUALITY GUIDE

What quality;

In principal, any clean water source can be used to operate EcoMESH system and apart from the standard city main water if any other water sourced is used it may well worth to consider a standard water filter to protect the spray nozzles.

Water hardness;

Water hardness is the result of naturally occurring calcium and magnesium salts. Water containing small amounts of these salts is said to be soft, whilst hard water contains greater levels.

What is water hardness?

There are two types of hardness, temporary and permanent, which depend on the type of salts present.

- Temporary hardness is usually result of dissolved calcium carbonate, which forms the familiar whitish coloured scale seen in kettles.
- Permanent hardness contains the sulphates of calcium and magnesium, which remain soluble even when heated.

How is hardness measured?

To calculate the total hardness of the water, the quantity of calcium and magnesium salts present in the water is found using the following calculation:

$$[\text{mg/l calcium} \times (2.497) + \text{mg/l magnesium} \times (4.188)] \times 0.4$$

This calculation gives the total hardness of the water as calcium in milligrammes per litre,).

Total hardness can be expressed in a number of different units. The table below provides the calculations used to convert Total Hardness (as Ca) to these different units.

Total Hardness (as Ca) (mg/l)	x 2.5 = calcium carbonate (CaCO₃) mg/l
	x 0.174 = Degrees Clarke (or Grains per gallon or English)
	x 0.25 = French Degrees
	x 0.142 = German Degrees
	÷ 40 = Millimoles as Ca (mmol/l)



Unit 32,
Mere View Industrial Estate,
Yaxley, Cambridgeshire,
PE7 3HS, UK
Tel.: +44-(0)-1733 244224
Fax.: +44-(0)-1733 243344
e-mail: info@ecomesh.eu
www.ecomesh.eu

Page-2

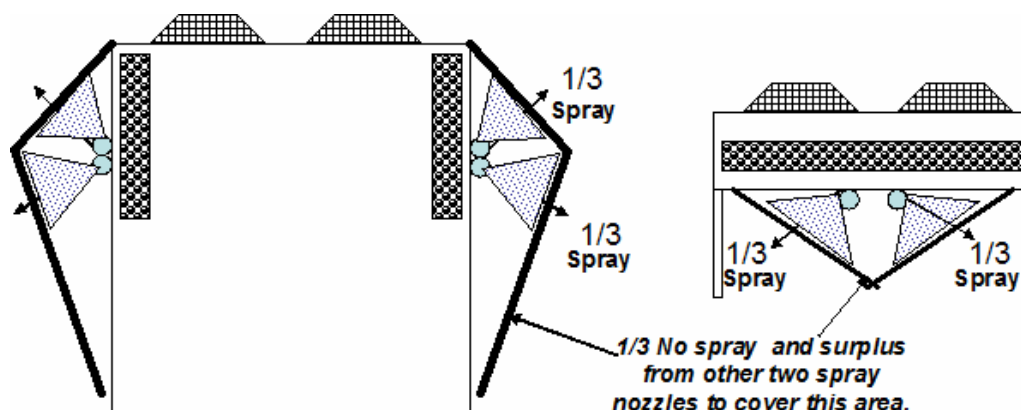
Water hardness can be expressed in number of different units and the Global general hardness classification is as follows;

	Calcium (mg/l) or ppm	Calcium Carbonate (mg/l) or ppm	Degree Clark	Degrees French	Degrees German	Mmol/l (millimoles of Ca/l)
VERY HARD	140	350	24.4	35	20	4
HARD	100	250	17.4	35	14	3
SOFT	30	75	5.2	8	4	1

ppm- parts per million
mg/l - milligrams per litre

EcoMESH Design;

It is vital to check to observe the coils stay dry during commissioning and water spray from nozzles should be wetting only the mesh panels. EcoMESH is manufactured using coarse rigid mesh in front of a soft woven mesh which can be considered self-cleaning and any scaling should be removed by mechanical movements of the mesh panels and therefore it is vital to ensure that the following spray area is observed;



As long as the coil stays dry and the water is only evaporated on the surface of the EcoMESH panels, no water requirement is necessary. Although mesh panels may turn white but as long as the air flow is not blocked the only impact would be visual with no impact on the performance and long term use of the system.

However, if the water reaches any other part of the unit, particularly the coils for example due to strong cross winds, nozzle angles or excessive high velocity air flow, it would be advisable to consider some form of water treatment to avoid any scale build up on the coils or any other part of the unit.



Unit 32,
Mere View Industrial Estate,
Yaxley, Cambridgeshire,
PE7 3HS, UK
Tel.: +44-(0)-1733 244224
Fax.: +44-(0)-1733 243344
e-mail: info@ecomesh.eu
www.ecomesh.eu

Page-3

	Recommendation
VERY HARD	Water treatment required
HARD	Suitable water treatment may be required
SOFT	No water treatment required

Although EcoMESH can provide a water treatment kit, it is recommended to deal with a local water treatment company specialised in water softening.

The main aim is to remove the Calcium which causes any scaling and there are a number of options may be considered depending on local water quality;

a) Chemical Softening;

These chemical filters may remove majority of the chemicals and convert hard water to soft water quality. Generally used for drinking water system and may be considered if the water is very hard.

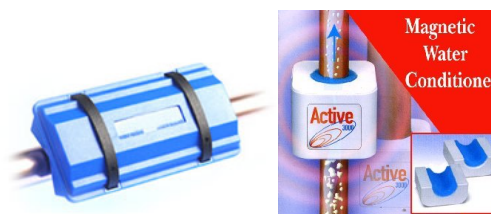


b) Magnetic Filters;

These are the most practical and maintenance free solution and may modify the scale formation from hard to soft so that it makes it easier to clean and offers;

- No moving parts
- Lifetime guarantee
- No power required
- Easy to fit
- No chemicals

and it is easy to fit (bear in mind you still power supply generally 230V) or alternatively you could have the permanent magnet version.





Unit 32,
Mere View Industrial Estate,
Yaxley, Cambridgeshire,
PE7 3HS, UK
Tel.: +44-(0)-1733 244224
Fax.: +44-(0)-1733 243344
e-mail: info@ecomesh.eu
www.ecomesh.eu

Page-4

It is essential to check the water source quality during design, installation and commissioning stages and if a very hard or hard water is used to feed the EcoMESH spray operation it is vital to ensure that coil and unit stays dry and the water is only sprayed over the mesh panels.

If for any reason water reaches the unit and especially the coil blocks it is strongly recommended to regularly check the status of the coils and unit base frames against any excessive scale build up. If this over spray can not be eliminated by;

- a) Simply re-positioning and / or re-adjusting the angle of the nozzles.
- b) Reducing the water pressure.

it is recommended that a suitable water treatment is applied to ensure that water hardness is reduced and any scaling can be removed within an acceptable maintenance frequency.

EcoMESH would be more than happy to support any water treatment issues and help to develop a suitable water treatment system for any site.



Zafer URE
Managing Director