

Work sheet S 1. a

Edition 12/99

1. General

HYDROLIT-MG is a spherical filtering material out of magnesium compounds ($MgO * Mg(OH)_2$). HYDROLIT-MG complies with requirements of drinking water regulation and DIN 2000. HYDROLIT-MG guarantees safe and economic operation requiring only little maintenance due to its high capacity of reaction its stable structure and its high chemical and microbiological percentage of purity.

2. Areas of application

HYDROLIT-MG is used for neutralization e.g. of

- Sulphuric acid (H_2SO_4)
- Hydrochloric acid (HCl)
- Nitric acid (HNO_3)
- Ethanoic acid (CH_3COOH)

in both open and closed system in flow of direction either from above downwards or from below upwards.

This may be e.g. neutralization of acid ion exchanger sewage purification or acid industry service water poor in heavy metal content or acid condensates of incineration.

Neutralization takes place automatically at observing kind of acid, concentration of acid and grain size and in dependence on quantities used in the flow until pH value required for conduction into drainage system or outfall ditch.

HYDROLIT – MG

Neutralization

3. Special notes on use

- 3.1 Filtering plant has to be designed in such a way that continuous operation at rated capacity can be achieved. Short-time underload by maximum 30 % is admissible.
- 3.2 Due to separation of larger amounts of iron and manganese compounds or other heavy metals or suspended matter, grain surface of HYDROLIT-MG may be blocked partially and neutralization obstructed.

4. Chemical and physical data

4.1 Chemical composition:

Magnesium oxide	MgO	approx. 70 – 75	%
Calcium oxide	CaO	approx. 4 – 5	%
Iron oxide	Fe ₂ O ₃] app. 3 – 4	%]
Aluminium oxide	Al ₂ O ₃		
Silicic acid	SiO ₂		
Ignition loss	(CO ₂ +H ₂ O)	app. 16 – 20	%

Values represent average of regular examinations carried out over several years.

4.2 Grain sizes

Grain size I	0,5 – 2,5	mm
Grain size II	2,0 – 5,0	mm
Grain size III	5,0 – 10,0	mm

4.3 Bulk density (storage density)

Grain size I	approx. 1,2	t/m ³
Grain size II – III	approx. 1,3	t/m ³

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Neutralization

4.4 Consumption

Per g converted acid

H ₂ SO ₄	approx.0,63	g
HCl	approx.0,85	g
HNO ₃	approx.0,49	g
CH ₃ COOH	approx.0,52	g

(inclusive backwash losses)

5. Technical data

5.1 Filtering material layers

Depending on filtering speed, kind and concentration of acid as well as grain size of HYDROLIT-MG and hydraulic conditions

at open filters	500 – 2000	mm
at closed filters	1000 – 3000	mm

5.2 Filtration rate

According to problems to be solved and observing hydraulic conditions:

at open filters	1 - 7	m/h
at closed filters	2 - 12	m/h

5.3 Rinsing (recommendation)

With air and water (combined)

- Air scour
time approx. 60 m/h
approx. 5 min
- combined air/water backwash
with air approx. 60 m/h
with water approx. 8 – 12 m/h
time: approx. 10 min
- Water backwash approx. 20 – 25 m/h
time: until clear water drain

5.4 Free board height

At backwashing as to 5.3 approx. 300 – 500 mm

5.5 Re-filling

Re-filling of HYDROLIT-MG should be done after 20 % of initial quantity has been consumed. At regular re-filling, result of neutralization will be more constant.

6. Delivery

Ex works

in Poly-bags with 50 kg or 25 kg each

7. Individual advice

Because of particularities in each case of application to be considered, advice and description of characteristics can be given only individually corresponding to the particular case. Information, notes and advice, therefore, contained in this work sheet are not legally binding. We shall be responsible only, if and as far as these are either confirmed by us on request in writing in the particular case or characteristics have been guaranteed in writing. Individual proposal will be made on request.