

AQUATENSID BW

Waterbased Quenchant for induction hardening

(spray-application) and tank quenching

AQUATENSID BW is supplied as a viscous, unpoisonous green fluid. It does not contain mineral-oil or nitrite or any other harmful material.

The concentrate is diluted with water for application. Depending on the ratio, quenching rates faster than oil but slower than water can be obtained, Quenching curves for various concentrations are enclosed.

Plain carbon and low alloyed steels require fast and uniform quenching which only a quenchant with an extremely short vapor phase will guarantee as AQUATENSID BW at low concentration.

Alloyed steels are due to their good hardenability sensitive to cracking when being water-quenched. Because it is almost impossible apply quenching oils on induction hardening machines for spray-quenching, so only AQUATENSID BW in a higher concentration can be used to reduce the quenching speed of water in order to avoid distortion and cracks.

Due to the outstanding reproducibility of the quenching curves of

AQUATENSID BW it is also widely applied for tank (immersion) quenching: e.g. for forged pieces – also for direct quenching from forging temperature- for hand tools, agricultural equipment etc.

Recommendations for suitable concentrations for tank quenching

(spray quenching on induction hardening machines requires only half to two thirds of these concentration values)

<i>Material</i>	<i>Recommended concentration</i>
Low and unalloyed steels:	
Carbon content 0.30-0.50%	3 – 8%
Carbon content 0.50-0.70% (chromium steels up to 1%, spring steels)	10 – 15%
Alloyed steels:	
0.30-0.5 %C alloyed with chromium molybdenum or vanadium	12 – 25%

AQUATENSID BW forms a solution (no emulsion) with water. Concentrate may be added to water or vice versa. Water hardness of minor influence.

The best operating temperature of AQUATENSID BW for tank quenching should be between 25 and 45 °C, on induction hardening machines 25- 35°C, max. 40°C. Temperatures should never exceed 60°C, in case they do – e.g. after quenching a batch before the next, the fluid should be cooled down to min. 40°C.

Control of AQUATENSID BW solutions:

The control of AQUATENSID BW solution is carried out in a simple manner by measuring the refractive index by using a manual refractometer. The quenchant can be controlled directly at the induction-hardening-machine or the quenching bath, a laboratory is not necessary.

When AQUATENSID BW is used on along-term basis for tank-quenching it is also recommended to measure the viscosity at 20°C frequently because the correlation between viscosity and the quenching properties are closer than between refractive reading and this. The refractive reading is influenced by contamination, while the viscosity is practically not.

AQUATENSID BW usually does not foam, however in case it does, check the system for ontrapment of air e.g. in pumps, by back-flow pipes not ending below the fluid's

surface etc. In case add CONTRAFUM N 1:10,000 up to 1:5000.

Conversion table for refractive reading and viscosity

Concentration In % by weight	Refractive reading	Viscosity at 20°C in mm ² /s
1	0.4	1.4
2	1.1	1.5
3	1.5	1.6
4	2.2	1.8
5	2.6	1.9
6	3.2	2.1
7	3.6	2.3
8	4.2	2.5
9	4.7	2.7
10	5.3	3.0
11	5.8	3.3
12	6.2	3.5
13	6.7	3.8
14	7.2	4.2
15	7.8	4.5
16	8.5	4.9
17	9.0	5.3
18	9.5	5.8
19	10.0	6.3
20	10.5	6.9

Packing:

Steel Drum

Net Weight: 200 kg/Drum

Only valid in combination with EC-Safety-Data-Sheet.

Warranty

The information given here is considered to be correct and is offered for your consideration, investigation and verification. No warranties are expressed or implied since the use of our products is beyond our control. Statements concerning the use of PETROFER-products are not to be constructed as recommending the infringement of any patent.

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