

A yellow fog water collector is mounted on a metal pole. It has a blue tap at the bottom. A white plastic bottle is being held under the tap, and a blue plastic bottle is also being held under the tap. The background is a hazy, outdoor setting.

FOG WATER IS DRINKING WATER

The water samples appear colourless, clear and odourless. pH levels are normal, in the range 7.1 to 7.7; only the hail net produces a slightly alkaline result (pH = 8.5). Conductivity, as a general parameter for the salt content of the water, is very low, ranging from 83 to 99 S/cm. This is due to low concentrations of chloride (8.9 - 11 mg/l), sulphate (11 - 12 mg/l) and nitrate (5 - 6.4 mg/l).

The water from all the nets contains low concentrations of the heavy metals chromium, copper, zinc, cadmium and nickel, and of arsenic. However, the levels are far below the limits imposed by European drinking water regulations; a toxic effect can therefore be excluded. Concentrations at this level can in fact act as physiologically valuable trace elements. TOC concentrations of 2.2 - 2.8 mg/l indicate that the amount of organic matter is relatively low. Organic contamination can be introduced into the water from the atmosphere and via the collectors. An explanation has yet to be found for the higher levels of ammonium nitrogen (1.1 - 1.9 mg/l); further research will be needed to determine the causal factors. Low concentrations of calcium and magnesium mean that the water is very soft, corresponding to less than 2° of average water hardness in Germany. Regular samples are taken, showing concentrations nearly identical to those from previous test series. Fog water is suitable as drinking water for villages located in valleys, where it can be added to groundwater from lower-lying wells.

ANALYSIS OF FOG WATER

Relevant values compared to threshold values under the German Drinking Water Ordinance (DWO) of 21 May 2001 and the standards of the WHO.

Parameter	Unit	Limit WHO	Limit DWO	Hail net	Spacer fabric	Enkamat	Slubbed fabric	Raschel net	Shade net
pH value	-	-	6,5-9,5	8,5	7,7	7,2	7,2	7,2	7,1
Conductivity (20°C)	µS/cm	-	2790 (25°C)	84,0	83,0	89,0	99,0	88,0	93,0
Chloride	mg/l	-	250,0	9,5	9,9	9,7	11,0	8,9	10,0
Sulphate	mg/l	-	250,0	11,0	11,0	12,0	12,0	11,0	12,0
Nitrate	mg/l	50,0	50,0	5,0	-	6,4	6,4	6,1	6,3
Ammonium-N	mg/l	-	0,65	1,1	1,5	1,2	1,2	1,8	1,9
Iron	mg/l	-	0,2	0,0084	0,014	0,0083	0,0044	0,016	0,013
Manganese	mg/l	0,4	0,05	0,012	0,011	0,067	0,0083	0,013	0,012
Lead	mg/l	0,01	0,01	0,00015	0,0002	0,000094	<0,00005	0,00014	0,00013
Arsenic	mg/l	0,01	0,01	0,00033	0,00037	0,00042	0,0083	0,00043	0,00045
Chromium total	mg/l	0,05	0,05	<0,0005	<0,0005	<0,0005	<0,0005	<0,0005	<0,0005
Copper	mg/l	2,0	2,0	0,003	0,0049	0,0042	0,0029	0,002	0,0077
Zinc	mg/l	-	-	0,064	0,065	0,097	0,066	0,079	0,071
Cadmium	mg/l	0,003	0,003	0,000095	0,00011	0,000092	0,000052	0,00008	0,000091
Nickel	mg/l	0,07	0,02	0,0013	0,0012	0,0016	0,00092	0,0014	0,0012
Uranium	µg/l	15,0	10,0	0,013	0,013	0,01	0,012	0,033	0,024
Calcium	mg/l	-	-	3,1	2,9	3,6	5,7	4,0	4,3
Magnesium	mg/l	-	-	0,99	0,92	1,0	1,1	1,1	1,1
Total organic carbon	mg/l	-	-	2,4	2,8	2,4	2,3	2,2	2,6