drinking water annual report 2015

Labor

Verbund-Wasserwerk Witten **Labor** **Ruhrstraße 110** **58452 Witten**	**Unit**	**Waterworks Rohland**	**Waterworks Volmarstein**	**Waterworks Witten**	**Limit Drinking Water Ordinance**
general parameters					
pH-value		8,31	7,80	7,89	6,50 - 9,50
electrical conductivity at 25°C	µS/cm	189	471	378	2790
turbidity	FNU	0,06	0,08	0,08	1,00
colouration (absorption of light at 436 nm)	1/m	0,03	0,02	0,07	0,50
UV-absorption (absorption of light at 254 nm)	1/m	1,77	1,37	2,06	
TOC (total organic carbon)	mg/l	1,21	1,06	1,22	
oxygen	mg/l	9,5	11,0	10,4	
base capacity up to pH 8,2	mmol/l	0,000	0,072	0,041	
free carbon dioxide	mg/l	0,00	0,00	0,00	
acid capacity up to pH 4,3	mmol/l	0,790	2,145	1,680	
carbonate hardness	°dH	2,2	6,0	4,7	
water hardness specified as					
total alkaline earths	mmol/l	0,688	2,038	1,298	
total hardness	°dH	3,86	11,43	7,28	
hardness range WRMG		soft	medium hard	soft	
bacteriological parameters					
bacterial count at 22°C	1/ml	0	0	0	100
bacterial count at 36°C	1/ml	0	1	0	100
coliform bacteria	1/100ml	0	0	0	0
escherichia coli (e. coli)	1/100ml	0	0	0	0
clostridium perfringens	1/100ml	0	0	0	0
enterococci	1/100ml	0	0	0	0
chlorine, free	mg/l	0,20	0,30	---	0,30
chlorine, total	mg/l	0,25	0,35	---	
chlorine dioxide	mg/l	0,09	---	---	0,20
chlorite	mg/l	0,12	---	---	0,20
organic parameters					
benzene	mg/l	<0,00025	<0,00025	<0,00025	0,00100
benzo(a)pyrene	mg/l	<0,0000010	<0,0000010	<0,0000010	0,0000100
1,2-dichloroethane	mg/l	<0,0003	<0,0003	<0,0003	0,0030
dichloromethane	mg/l	<0,001	<0,001	<0,001	
tetrachloromethane	mg/l	<0,0001	<0,0001	<0,0001	
total tri- und tetrachloroethylene	mg/l	<0,0001	<0,0001	<0,0001	0,0100
total trihalomethanes	mg/l	0,0012	0,0028	n.n.	0,0100
total PAH (polycyclic aromatic hydrocarbons)	mg/l	n.n.	n.n.	n.n.	0,0001
total plant protection products & pesticides	mg/l	n.n.	n.n.	n.n.	0,0005
total PFOA and PFOS	ng/l	n.n.	<10	<10	300
total PFT	ng/l	n.n.	<10	<10	

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Verbund-Wasserwerk Witten Labor Ruhrstraße 110 58452 Witten	Unit	Waterworks Rohland	Waterworks Volmarstein	Waterworks Witten	Limit Drinking Water Ordinance
Mineral Components					
Anionen					
hydrogen carbonate	mg/l	48,2	130,9	102,5	
chloride	mg/l	15,9	34,6	35,9	250,0
nitrate	mg/l	13,6	22,2	12,2	50,0
sulphate	mg/l	13,1	62,8	35,7	250,0
phosphate, total	mg/l	<0,010	0,081	0,125	
nitrite	mg/l	<0,01	<0,01	<0,01	0,10
fluoride	mg/l	0,04	0,16	0,11	1,50
cyanide	mg/l	<0,01	<0,01	<0,01	0,05
bromate	mg/l	<0,003	<0,003	<0,003	0,010
silicates	mg/l	4,00	7,70	2,50	
cations					
sodium	mg/l	8,0	24,3	24,6	200,0
potassium	mg/l	1,6	5,6	3,6	
magnesium	mg/l	3,5	14,0	6,8	
calcium	mg/l	21,8	58,6	40,8	
iron	mg/l	0,001	0,003	0,001	0,20
manganese	mg/l	<0,001	<0,001	<0,001	0,05
boron	mg/l	<0,050	0,090	0,056	1,00
aluminium	mg/l	0,022	0,002	0,019	0,200
ammonium	mg/l	<0,01	<0,01	<0,01	0,50
micro elements					
antimony	mg/l	<0,001	<0,001	<0,001	0,005
arsenic	mg/l	<0,001	<0,001	<0,001	0,010
lead	mg/l	<0,001	<0,001	<0,001	0,010
cadmium	mg/l	<0,0001	<0,0001	<0,0001	0,0030
chromium	mg/l	<0,001	<0,001	<0,001	0,050
nickel	mg/l	<0,001	<0,001	0,002	0,020
mercury	mg/l	<0,0001	<0,0001	<0,0001	0,0010
copper	mg/l	0,002	0,009	0,011	2,00
selenium	mg/l	<0,001	<0,001	<0,001	0,010
zinc	mg/l	0,002	0,002	0,005	
uranium	mg/l	<0,0001	<0,0001	0,0001	0,0100

"n.n." - "below detection limit"
"<" - "lower than limit of quantification"

"Limit Drinking Water Ordinance" = limit of the German Trinkwasserverordnung (TrinkwV 10.03.2016)
"total PFOA and PFOS" = sum of the perfluorinated tensides PFOA and PFOS
"total PFT" = sum of all detected perfluorinated tensides

"hardness range WRMG"
The German law "Wasch- und Reinigungsmittelgesetz" (WRMG 17.07.2013) defines three ranges of water hardness:

- „weich“ = soft — lower than 1,5 millimol calciumcarbonat per litre
- „mittel“ = medium hard — between 1,5 and 2,5 millimol calciumcarbonat per litre
- „hart“ = hard — more than 2,5 millimol calciumcarbonat per litre

- „1 °dH“ = 10 mg $CaCO_3$ dissolved in 1 liter water are equivalent to 1 °dH (one degree german water hardness)

In case of questions to our drinking water report please contact VWW - laboratory:
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