

SOLUTIONS CONCENTRATION ASSESSMENT					GE 15 / 6	
	Formula	Molar mass	Value in mg/l of the various units			
			Milli-equivalent/l	French degree	German degree	CaCO ₃ ppm
1° Salts and calcium and magnesium oxides contributing to water hardness (hydrotimetric grade)						
Calcium carbonate	CaCO ₃	100	50	10.0	17.8	1.00
Calcium hydrogenocarbonate (bicarbonate)	Ca(HCO ₃) ₂	162	81	16.2	28.9	1.62
Calcium sulphate	CaSO ₄	136	68	13.6	24.3	1.36
Calcium chloride	CaCl ₂	111	55.5	11.1	19.8	1.11
Calcium nitrate	Ca(NO ₃) ₂	164	82	16.4	29.3	1.64
Quick lime	CaO	56	28	5.6	10.0	0.56
Hydrated lime	Ca(OH) ₂	74	37	7.4	13.2	0.74
Magnesium carbonate	MgCO ₃	84	42	8.4	15.0	0.84
Magnesium hydrogenocarbonate (bicarbonate)	Mg(HCO ₃) ₂	146	73	14.6	26.1	1.46
Magnesium sulphate	MgSO ₄	120	60	12.0	21.4	1.20
Magnesium chloride	MgCl ₂	95	47.5	9.5	17.0	0.95
Magnesium nitrate	Mg(NO ₃) ₂	148	74	14.8	26.4	1.48
Magnesia	MgO	40	20	4.0	7.1	0.40
	Mg(OH) ₂	58	29	5.8	10.3	0.58
2° Anions						
Carbonate	CO ₃	60	30	6.0	10.7	0.60
Hydrogenocarbonate (bicarbonate)	HCO ₃	61	61	12.2	21.8	1.22
Sulphate	SO ₄	96	48	9.6	17.3	0.96
Sulphite	SO ₃	80	40	8.0	14.3	0.80
Chloride	Cl	35.5	35.5	7.1	12.7	0.71
Nitrate	NO ₃	62	62	12.4	22.1	1.24
Nitrite	NO ₂	46	46	9.7	16.4	0.97
Orthophosphate	PO ₄	95	31.66	6.32	11.25	0.63
Hydrogenosilicate, Silicate expressed in SiO ₂	SiO ₂	60	60	12.0	21.4	1.20
3° Acids						
Sulfuric	H ₂ SO ₄	98	49	9.8	17.6	0.98
Hydrochloric	HCl	36.5	36.5	7.3	12.8	0.73
Nitric	HNO ₃	63	63	12.6	22.5	1.26
Orthophosphoric	H ₃ PO ₄	98	32.66	6.52	11.64	0.65
4° Cations and oxides						
Calcium	Ca	40	20	4.0	7.15	0.40
Magnesium	Mg	24.3	12.1	2.43	4.35	0.24
Sodium	Na	23	23	4.6	8.2	0.46
	Na ₂ O	62	31	6.2	11.1	0.62
Potassium	K	39	39	7.8	13.9	0.78
	K ₂ O	94	47.1	9.4	16.8	0.94
Iron II	Fe	55.8	18.6	3.7	6.6	0.37
Iron III	Fe	55.8	18.6	3.7	6.6	0.37
Aluminium	Al	27	9	1.8	3.2	0.18
	Al ₂ O ₃	102	17	3.4	6.1	0.34
5° Bases						
Ammonium	NH ₄	18	18	3.6	6.4	0.36
Soda	NaOH	40	40	8.0	14.3	0.80
Potash	KOH	56	56	11.2	20.0	1.12
Ammonia	NH ₄ OH	35	35	7.0	12.5	0.70
6° Miscellaneous salts						
Sodium hydrogenocarbonate (bicarbonate)	NaHCO ₃	84	84	16.8	30	1.68
Sodium carbonate	Na ₂ CO ₃	106	53	10.6	18.9	1.06
Sodium sulphate	Na ₂ SO ₄	142	71	14.2	25.3	1.42
Sodium chloride	NaCl	58.5	58.5	11.7	20.9	1.17
Sodium orthophosphate	Na ₃ PO ₄	164	54.7	10.9	19.5	1.09
Sodium silicate	Na ₂ SiO ₃	122	61	12.2	21.8	1.22
Potassium carbonate	K ₂ CO ₃	138	69	13.8	24.6	1.22
Potassium hydrogenocarbonate (bicarbonate)	KHCO ₃	100	100	20	35.7	2.00
Potassium sulphate	K ₂ SO ₄	174	8.7	17.4	31.1	1.74
Potassium chloride	KCl	74.5	74.5	14.9	26.6	1.49
Potassium orthophosphate	K ₃ PO ₄	212.3	70.8	14.1	25.2	1.41
Ferrous sulphate	FeSO ₄	152	76	15.2	27.1	1.52
Ferric sulphate	Fe ₂ (SO ₄) ₃	400	66.6	13.3	23.8	1.33
Ferric chloride	FeCl ₃	162.5	54.2	10.8	19.3	1.08

Aluminium sulphate	$\text{Al}_2(\text{SO}_4)_3$	342	57	11.4	20.3	1.14
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