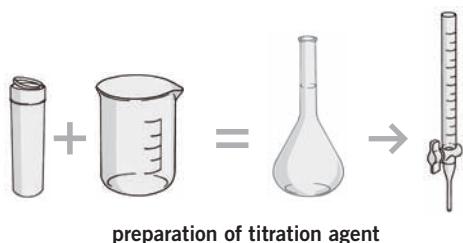


NORMANAL®

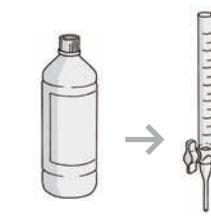
Normalal® solutions are concentrated volumetric solutions with extremely high precision of concentration*. Normalal® solutions in special plastic vials with tear-off seals contain exactly calculated quantities of solid or liquid chemical substances that after dilution with distilled water up to 1,000 mL produce volumetric solutions with the concentrations and factors given on the vials. The numerical value of the factor of Normalal® is 0.003 %, i.e. its concentration is guaranteed within the range of 99.997 – 100.003 %.

Benefits:

- The volumetric solutions prepared from them are up to ten times more precise than the competitive ones.
- They are delivered in plastic vials with tear-off seals that are adapted to easy and safe transfer of the contents into a graduated vessel.



preparation of titration agent



saving of 50% of time

- **10-times more precise than the competitors**
- **New, safe packaging**
- **50 years of production tradition**
- **Direct manufacturer**

Note:

*) The precision of concentration is expressed by the factor, which is the number giving the ratio of the actual and required concentration of the volumetric solution; the used quantity of the volumetric solution must be multiplied by the factor. The factor of the volumetric solution is determined using standard substances – standards.

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ORS Volumetric Solution

ORS solutions are volumetric solutions of ready-to-use titration agents with a high precision of concentration*. The concentration of the volumetric solution is generally expressed as so-called molar concentration, i.e. the molar quantity of the active substance contained in 1,000 mL of the titration agent. The numerical value of the factor of the volumetric solution is 0.03 %, i.e. its concentration is guaranteed within the range of 99.97 – 100.03 %.

Benefits:

- Volumetric solutions are ready to immediate use for titration.
- Saving of 50 % of time.
- Their application eliminates possible errors occurring during preparation of volumetric solutions (errors in weighing, measuring).

Rapid and precise determination of concentration of substances

NORMANAL® concentrated volumetric solutions*
ORS volumetric solutions*

- **10-times more precise than the competitors**
- **New, safe packaging**
- **50 years of production tradition**
- **Direct manufacturer**



*) A list of volumetric solutions offered together with available concentrations and benefits of both types is given on the next pages

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New 2/2007

Summary of Normalan solutions available

Summary of ORS solutions available

ORS Name	ORS Concentration	Solution Concentration															
		1/600 mol/l	1/60 mol/l	1/6 mol/l	1/24 mol/l	1/12 mol/l	1 mol/l	0.5 mol/l	0.25 mol/l	0.2 mol/l	0.125 mol/l	0.1 mol/l	0.05 mol/l	0.025 mol/l	0.02 mol/l	0.01 mol/l	0.005 mol/l
Potassium Bromate	c(KBrO ₃)	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.
Potassium Bromide	c(KBr)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Potassium Dichromate	c(K ₂ Cr ₂ O ₇)						.	.	.	.	.	.	.	.	.	.	.
Lead Nitrate	c[Pb(NO ₃) ₂]	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Mercury Nitrate Monohydrate	c[Hg(NO ₃) ₂ .H ₂ O]	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Silver Nitrate	c(AgNO ₃)	.	.	.	.	.							.	.	.	.	.
Potassium Hydroxide	c(KOH)	.	.	.	.	.				.	.	.		.	.	.	.
Sodium Hydroxide	c(NaOH)	.	.	.	.	.				.	.	.		.	.	.	.
Chelatone III	c(C ₁₀ H ₁₄ O ₆ N ₂ Na ₂ .2H ₂ O)	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
Barium Chloride Dihydrate	c(BaCl ₂ .2H ₂ O)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Potassium Chloride	c(KCl)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sodium Chloride	c(NaCl)	.	.	.	.	.				.	.	.		.	.	.	.
Potassium Iodate	c(KIO ₃)	.			.	.	.	.	.	.	.	.	.	.	.	.	.
Potassium Iodide	c(KI)	.	.	.	.	.			.	.	.	.		.	.	.	.
Nitric Acid	c(HNO ₃)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hydrochloric Acid	c(HCl)	.	.	.	.	.				.	.	.		.	.	.	.
Acetic Acid	c(CH ₃ COOH)	.	.	.	.	.			.	.	.	.		.	.	.	.
Sulphuric Acid	c(H ₂ SO ₄)	.	.	.	.	.	.	.		.	.	.		.	.	.	.
Oxalic Acid Dihydrate	c(C ₂ H ₂ O ₄ .2H ₂ O)	.	.	.	.	.	.	.		.	.	.		.	.	.	.
Potassium Permanganate	c(KMnO ₄)	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
Ammonium Ferrous Sulphate Hexahydrate	c[(NH ₄) ₂ Fe(SO ₄) ₂ .6H ₂ O]	.	.	.	.	.	.	.		.	.	.		.	.	.	.
Magnesium Sulphate Heptahydrate	c(MgSO ₄ .7H ₂ O)	.	.	.	.	.	.	.	.		.	.		.	.	.	.
Ammonium Thiocyanate	c(NH ₄ SCN)	.	.	.	.	.	.	.	.		.	.		.	.	.	.
Sodium Thiosulphate Pentahydrate	c(Na ₂ S ₂ O ₃ .5H ₂ O)	.	.	.	.	.				.	.	.		.	.	.	.
Sodium Carbonate Anhydrous	c(Na ₂ CO ₃)	.	.	.	.	.	.	.	.		.	.		.	.	.	.