Epsom Salt

Ph. Eur., USP (for use in preparing nonparenteral dosage forms)
Magnesium Sulphate Heptahydrate ($MgSO_4 \cdot 7H_2O$)
Purity and properties correspond to the requirements of the a.m. regulations (see enclosed table for values/limits)

Version 11.1 printing date 2013-07-03

Combined nomenclature: 28,332,100

Nature of Product: white crystals

Chemical Analysis:	**typical**	**w**
• Magnesium Sulphate ($MgSO_4$)	49.1	%
• Water (H_2O)	50.9	%
• Na	40	mg/kg
• K	230	mg/kg
• Ca	60	mg/kg
• Cl	80	mg/kg
• B	7	mg/kg

Granulometry:	**typical**	**w**
• < 1 mm	70	%
• d_{50} [mm]	0.75	

Physical Properties:

• Bulk Density	ca. 980 kg/m³	
• Angle of Repose	ca. 32 °	
• Molecular Weight	246.48 g/mol	
• Density	1.7 g/cm³	
• Solubility in water	w ($MgSO_4$) = 26.3 %	20 °C (68 °F)

readily soluble, practically without residues; always vigorously stir the salt into water or solution

Special characteristics:

Depending on ambient temperature and prevailing relative humidity the product is prone to absorption of water and dehydration, which can result in caking.

Packaging:

- Big-Bags (900 or 1,000 kg)

Application:

For pharmaceutical purposes (e.g. as a laxative, in relaxing baths), as an additive to food and to cattle feed, for the production of edible oils. Pure magnesium sulphate is used in bioprocesses and for the manufacture of other Mg-compounds.

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Limits for Epsom Salt in the relevant regulations

Parameter	Ph. Eur. 7th edition 2012	USP 36
Content (dried substance)	99.0 – 100.5 %	99.0 – 100.5 %
Appearance	white or almost white, crystalline powder or brilliant, colourless crystals	-
Solubility	freely soluble in water, very soluble in boiling water, practically insoluble in ethanol (96 per cent)	-
Identification	it gives the reactions of sulphates and magnesium	a solution (1 in 20) responds to the tests for Magnesium and for Sulfate
Appearance of solution	clear and colourless	-
Acidity or alkalinity	≤ 0.2 ml 0.01 M HCl or 0.01 M NaOH	pH (1 in 20): 5.0 – 9.2
Chlorides	≤ 300 mg/kg	≤ 140 mg/kg
Arsenic	≤ 2 mg/kg	-
Iron	≤ 20 mg/kg	≤ 20 mg/kg nonparenteral dosage forms
Heavy metals	≤ 10 mg/kg	≤ 10 mg/kg
Loss on drying / ignition	48.0 – 52.0 %	40.0 – 52.0 %
Residual solvents	meets CPMP/ICH/283/95	meets test <467>
Selenium	-	< 30 mg/kg

-: not specified