

Magnesium hydroxide (Magnesii hydroxidum)**Molecular formula.** $\text{Mg}(\text{OH})_2$ **Relative molecular mass.** 58.32**Chemical name.** Magnesium hydroxide; CAS Reg. No. 1309-42-8.**Description.** A white, fine, amorphous powder; odourless.**Solubility.** Practically insoluble in water and ethanol (~750 g/l) TS; soluble in dilute acids.**Category.** Antacid.**Storage.** Magnesium hydroxide should be kept in a tightly closed container.**Requirements****Definition.** Magnesium hydroxide contains not less than 95.0% and not more than 100.5% of $\text{Mg}(\text{OH})_2$, calculated with reference to the dried substance.**Identity tests**

A. Dissolve 10 mg in 1.0 mL of hydrochloric acid (~70 g/l) TS, add 1.0 mL of ammonium chloride (100 g/l) TS, 0.5 mL of disodium hydrogen phosphate (100 g/l) TS, and 1.0 mL of ammonia (~100 g/l) TS; a white, crystalline precipitate is formed, which is soluble in acetic acid (~300 g/l) TS.

B. Dissolve 10 mg in 1.0 mL of hydrochloric acid (~70 g/l) TS, and add 2.0 mL of sodium hydroxide (~80 g/l) TS; a white, gelatinous precipitate is produced, which is insoluble in an excess of sodium hydroxide (~80 g/l) TS. Add a few drops of iodine TS; the precipitate turns dark brown.

Heavy metals. Dissolve 1.0 g in 15 mL of hydrochloric acid (~250 g/l) TS and shake with 25 mL of methylisobutylketone R for 2 minutes. Allow to stand, separate the layers, and evaporate the aqueous layer to dryness. Dissolve the residue in 15 mL of water and proceed as described under [2.2.3 Limit test for heavy metals](#), Procedure 1; determine the heavy metals content according to Method A; not more than 30 µg/g.

Arsenic. Use a solution of 3.3 g in 20 mL of sulfuric acid (~100 g/l) TS and 35 mL of water and proceed as described under [2.2.5 Limit test for arsenic](#); the arsenic content is not more than 3 µg/g.

Calcium. Dissolve 5.0 g in a mixture of 50 mL of acetic acid (~300 g/l) TS and 50 mL of water, boil for 2 minutes, cool, and dilute to 100 mL with acetic acid (~120 g/l) TS. Filter, if necessary, through a previously ignited and tared porcelain or silica filter crucible of suitable porosity to give a clear filtrate. Dilute 1.3 mL of the filtrate to 150 mL with water (retain the filter for the test of substances insoluble in acetic acid). To 0.20 mL of ethanolic calcium standard (100 µg/mL Ca) TS add 0.8 mL of ammonium oxalate (50 g/l) TS. After 1 minute add 1 mL of acetic acid (~120 g/l) TS and 15 mL of the diluted filtrate prepared above.

Prepare similarly a standard solution using a mixture of 10 mL of calcium standard (10 µg/mL Ca) TS and 5 mL of water.

After 15 minutes any opalescence produced in the test solution is not more intense than that in the standard (15 mg/g).

Iron. Dissolve 0.15 g in 5 mL of hydrochloric acid (~70 g/l) TS and dilute to 10 mL with water. Proceed with 4.0 mL of the resulting solution as described under [2.2.4 Limit test for iron](#); not more than 700 µg/g.

Water-soluble substances. Mix 2.0 g with 100 mL of water and boil for 5 minutes. Filter while still hot, allow to cool, and dilute to 100 mL with water. Evaporate 50 mL of the filtrate to dryness and dry at 105°C to constant weight; the residue weighs not more than 20 mg.

Substances insoluble in acetic acid. Any residue remaining on the filter used in the preparation of the solution to be examined in the limit test for calcium, when washed with water, dried and ignited at 600 °C, weighs not more than 5 mg.

Loss on ignition. Heat 0.5 g gradually to 900°C and ignite to constant mass; it loses not less than 0.300 g/g and not more than 0.325 g/g.

Loss on drying. Dry to constant weight at 105°C; it loses not more than 0.33 g/g.

Assay. Dissolve about 0.05 g, accurately weighed, in 2 mL of hydrochloric acid (~70 g/l) TS and proceed with the titration as described under [2.5 Complexometric titrations](#) for magnesium. Each mL of disodium edetate (0.05 mol/l) VS is equivalent to 2.916 mg of $\text{Mg}(\text{OH})_2$.