Edition: BP 2025 (Ph. Eur. 11.6 update)

Calamine

General Notices

Prepared Calamine

Action and use

Antipruritic.

Preparations

Aqueous Calamine Cream

Calamine Lotion

Calamine Ointment

Calamine and Coal Tar Ointment

DEFINITION

Calamine is a basic zinc carbonate suitably coloured with iron(III) oxide.

CHARACTERISTICS

An amorphous, impalpable, pink or reddish brown powder, the colour depending on the variety and amount of iron(III) oxide present and the process by which it is incorporated.

Practically insoluble in *water*. It dissolves with effervescence in *hydrochloric acid*.

IDENTIFICATION

A. Yields the reactions characteristic of *carbonates*, Appendix VI.
B. To 2 g add 5 mL of *hydrochloric acid* and heat to boiling; if necessary, add *hydrochloric acid* drop wise until a bright yellow solution is obtained. Cool and add *13.5M ammonia* until the first sign of precipitate (solution A). The solution yields reaction B characteristic of *iron salts*, Appendix VI. Dilute 1 mL of solution A to 5 mL with *water*; the solution yields the reaction characteristic of *zinc salts*, Appendix VI.

TESTS

Calcium

Dissolve 0.50 g in a mixture of 10 mL of *water* and 2.5 mL of *glacial acetic acid* and filter. To 0.5 mL of the filtrate add 15 mL of *5M ammonia* and 2 mL of a 2.5% w/v solution of *ammonium oxalate* and allow to stand for 2 minutes. The solution remains clear.

Soluble barium salts

To the remainder of the filtrate obtained in the test for Calcium add 2 mL of *1M sulfuric acid* and allow to stand for 5 minutes. The solution remains clear.

Lead

Not more than 150 ppm when determined by *atomic absorption spectrophotometry*, Appendix II D, Method II, measuring at 283.3 nm or 217 nm and using an air-acetylene flame. Carefully add 5 g of the substance being examined to 25 mL of *hydrochloric acid* and allow to stand for 18 hours. Add 5 mL of *nitric acid* and sufficient *water* to produce 200 mL. Use *lead standard solution (100 ppm Pb)* suitably diluted with a 3.5% v/v solution of *nitric acid* to prepare the standard solution.

Chloride

Dissolve 0.15 g in *water* with the addition of 1 mL of *nitric acid*, filter and dilute to 30 mL with *water*. The resulting solution complies with the *limit test for chlorides*, Appendix VII (0.07%).

Sulfate

Dissolve 0.1 g in *water* with the addition of 3 mL of *2M hydrochloric acid*, filter and dilute to 60 mL with *water*. The resulting solution complies with the *limit test for sulfates*, Appendix VII (0.6%).

Ethanol-soluble dyes

Shake 1.0 g with 10 mL of *ethanol (90%)* and filter. The filtrate is *colourless*, Appendix IV B, Method II.

Matter insoluble in hydrochloric acid

Dissolve 1 g in 20 mL of warm *2M hydrochloric acid* and filter. The residue, when washed with *water* and dried to constant weight at 105°, weighs not more than 10 mg.

Water-soluble dyes

Shake 1.0 g with 10 mL of *water* and filter. The filtrate is *colourless*, Appendix IV B, Method II.

Residue on ignition

68.0 to 74.0%, when ignited at a temperature not lower than 900° until, after further ignition, two successive weighings do not differ by more than 0.2% of the weight of the residue. Use 1 g.