Aspirin Delayed-release Tablets

アスピリン腸溶錠

Aspirin Delayed-release Tablets contain not less than 95.0% and not more than 105.0% of the labeled amount of aspirin ($C_9H_8O_4$: 180.16).

Method of preparation Prepare as directed under Tablets, with Aspirin.

Identification To a quantity of powdered Aspirin Delayed-release Tablets, equivalent to 0.4 g of Aspirin, add 5 mL of methanol, sonicate, and add a mixture of water and methanol (111:89) adjusted to pH 2.4 with phosphoric acid to make 50 mL. Filter this solution, and use the filtrate as the sample solution. Separately, weigh 0.4 g of Aspirin, proceed as directed for the preparation of the sample solution, and use the solution so obtained as the standard solution. Perform the test with these solutions as directed under Thin-layer Chromatography *<2.03>*. Spot 5 μL each of the sample solution and standard solution on a plate of silica gel with fluorescent indicator for thin-layer chromatography. Develop the plate with a mixture of pentane and acetic acid (100) (9:1) to a distance of about 8 cm, and air-dry the plate. Examine under ultraviolet light (main wavelength: 254 nm): the principal spot obtained from the sample solution and the spot from the standard solution show the same *R*f value.

Purity Salicylic acid—Weigh accurately a quantity of powdered Aspirin Delayed-release Tablets, equivalent to about 0.2 g of Aspirin, add 20 mL of methanol, sonicate, and add a mixture of water and methanol (111:89) adjusted to pH 2.4 with phosphoric acid to make exactly 200 mL. Filter this solution, use the filtrate as the sample solution. Separately, weigh accurately about 60 mg of salicylic acid for assay, previously dried in a desiccator (silica gel) for 3 hours, and dissolve in methanol to make exactly 100 mL. Pipet 5 mL of this solution, add methanol to make exactly 100 mL, and use this solution as the standard solution. Perform the test with exactly 10 μL each of the sample solution and standard solution as directed under Liquid Chromatography *<2.01>* according to the conditions described below, and determine the peak areas, A_T and A_S, of salicylic acid in each solution: the amount of salicylic acid ($C_7H_6O_3$) is not more than 3.0%.

$$\text{Content (mg) of salicylic acid } (C_7H_6O_3) = M_S \times A_T / A_S \times 1/10$$

M_S: Amount (mg) of salicylic acid for assay taken

Operating conditions—

Detector, column, column temperature, mobile phase, and flow rate: Proceed as directed in the operating conditions in the Assay.

System suitability—

System performance: Proceed as directed in the system suitability in the Assay.

System repeatability: When the test is repeated 6 times with 10 μL of the standard solution under the above operating conditions, the relative standard deviation of the peak areas of salicylic acid is not more than 1.0%.

Uniformity of dosage units *<6.02>* Perform the Mass variation test, or the Content uniformity test according to the following method: it meets the requirement.

To 1 tablet of Aspirin Delayed-release Tablets add 10 mL of methanol, sonicate, and add a mixture of water and methanol (111:89) adjusted to pH 2.4 with phosphoric acid to make exactly 100 mL. Filter this solution, and use the filtrate as the sample solution. Then, proceed as directed in the Assay.

$$\text{Amount (mg) of aspirin } (C_9H_8O_4) = M_S \times A_T / A_S \times 2$$

M_S: Amount (mg) of Aspirin RS taken

Dissolution *<6.10>* When the test is performed at 75 revolutions per minute according to the Paddle method, using 900 mL each of 1st fluid for dissolution test and 2nd fluid for dissolution test as the dissolution medium, the dissolution rate of Aspirin Delayed-release Tablets in 120 minutes using the 1st fluid for dissolution test is not more than 10%, and that in 90 minutes using 2nd fluid for dissolution test is not less than 75%.

Start the test with 1 tablet of Aspirin Delayed-release Tablets, withdraw not less than 20 mL of the medium at the specified minute after starting the test, and filter through a membrane filter with a pore size not exceeding 10 μm. Discard not less than 10 mL of the first filtrate, pipet V mL of the subsequent filtrate, add the dissolution medium to make exactly V' mL so that each mL contains about 0.11 mg of aspirin ($C_9H_8O_4$), and use this solution as the sample solution. Separately, weigh accurately about 56 mg of Aspirin RS, previously dried in a desiccator (silica gel) for 5 hours, dissolve in 1 mL of methanol, and add the dissolution medium to make exactly 50 mL. Pipet 5 mL of this solution, add the dissolution medium to make exactly 50 mL, and use this solution as the standard solution. Perform the test with the sample solution and standard solution as directed under Ultraviolet-visible Spectrophotometry *<2.24>*, using the dissolution medium as the blank, and determine the absorbances, A_{T1} and A_{S1} at 280 nm, and A_{T2} and A_{S2} at 350 nm when the test is performed using the 1st fluid for dissolution test as the dissolution medium, and A_{T1} and A_{S1} at 265 nm, and A_{T2} and A_{S2} at 350 nm when the test is performed using the 2nd fluid for dissolution test as the dissolution medium.

Dissolution rate (%) with respect to the labeled amount of aspirin ($C_9H_8O_4$)

$= M_S \times (A_{T1} - A_{T2}) / (A_{S1} - A_{S2}) \times V'/V \times 1/C \times 180$

M_S: Amount (mg) of Aspirin RS taken
C: Labeled amount (mg) of aspirin ($C_9H_8O_4$) in 1 tablet

Assay Weigh accurately the mass of not less than 20 tablets of Aspirin Delayed-release Tablets, and powder. Weigh accurately a quantity of the powder, equivalent to about 0.2 g of aspirin ($C_9H_8O_4$), add 20 mL of methanol, sonicate, and add a mixture of water and methanol (111:89) adjusted to pH 2.4 with phosphoric acid to make exactly 200 mL. Filter this solution, and use the filtrate as the sample solution. Separately, weigh accurately about 50 mg of Aspirin RS, previously dried in a desiccator (silica gel) for 5 hours, dissolve in 5 mL of methanol, add a mixture of water and methanol (111:89) adjusted to pH 2.4 with phosphoric acid to make exactly 50 mL, and use this solution as the standard solution. Perform the test with exactly 10 μL each of the sample solution and standard solution as directed under Liquid Chromatography *<2.01>* according to the conditions described below, and determine the peak areas, A_T and A_S, of aspirin in each solution.

Amount (mg) of aspirin ($C_9H_8O_4$) $= M_S \times A_T / A_S \times 4$

M_S: Amount (mg) of Aspirin RS taken

Operating conditions—

Detector: An ultraviolet absorption photometer (wavelength: 295 nm).

Column: A stainless steel column 4 mm in inside diameter and 12.5 cm in length, packed with octadecylsilanized silica gel for liquid chromatography (5 μm in particle diameter).

Column temperature: A constant temperature of about 40°C.

Mobile phase: A mixture of a solution prepared by dissolving 0.341 g of potassium dihydrogen phosphate in 1000 mL of water and adjusting to pH 2.0 with phosphoric acid and methanol (3:2).

Flow rate: 1.8 mL per minute (the retention time of aspirin is about 2 minutes).

System suitability—

System performance: Dissolve 0.2 g of Aspirin in 1 mL of a solution of salicylic acid for assay in methanol (3 in 500) and 20 mL of methanol, and add a mixture of water and methanol (111:89) adjusted to pH 2.4 with phosphoric acid to make exactly 200 mL. When the procedure is run with 10 μL of this solution under the above operating conditions, aspirin and salicylic acid are eluted in this order with the resolution between these peaks being not less than 4.

System repeatability: When the test is repeated 6 times with 10 μL of the standard solution under the above operating conditions, the relative standard deviation of the peak area of aspirin is not more than 1.0%.

Containers and storage Containers—Tight containers.