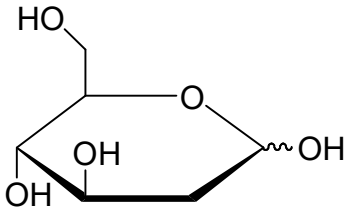
2-Deoxy-D-Glucose



$C_6H_{12}O_5$ Mol Wt. 164.2

2-Deoxy-D-Glucose is 2-Deoxy Glucose.

2-Deoxy-D-Glucose contains not less than 98.0 per cent and not more than 102.0 per cent of $C_6H_{12}O_5$, calculated on the anhydrous basis.

Description. A white to off white powder.

Identification

A. Determine by infrared absorption spectrophotometry (2.4.6). Compare the spectrum with that obtained with *2-deoxy-D-glucose RS* or with the reference spectrum of 2-deoxy-D-glucose.

B. In the Assay, the principal peak in the chromatogram obtained with the test solution corresponds to the peak in the chromatogram obtained with the reference solution.

Tests

Specific optical rotation (2.4.22). +44.0˚ to +48.0˚, determined in a 1.0 per cent w/v solution.

Related substances. Determine by liquid chromatography (2.4.14).

Test solution. Dissolve 0.1 g of the substance under examination in *water,* with the aid of ultrasound, and dilute to 5.0 ml with *water*.

Reference solution (a). A 2.0 per cent w/v solution of *glucose impurity (D- glucose)* in *water.*

Reference solution (b). Dissolve 100 mg of *2-Deoxy-D-Glucose IPRS* in 3.0 ml of *water*, with the help of cyclomixer, add 25 µl of reference solution (a) and dilute to 5.0 ml with *water*.

Reference solution (c). A 2.0 per cent w/v solution of *2-Deoxy-D-Glucose IPRS* in *water.* Dilute 1.0 ml of the solution to 100.0 ml with *water.* Dilute 1.0 ml of the solution to 10.0 ml with *water.*

Chromatographic system
- a stainless steel column 25 cm x 4.6 mm, packed with octadecylsilane bonded to porous silica (5µm) (Such as Inert sustain AQ-C18),
- column temperature: 55˚,
- mobile phase: *water*,
- flow rate: 0.5 ml per minute,
- refractive index detector,
- detector cell temperature: 50˚,
- injection volume: 10 µl,

Name	Relative retention time	Correction factor
Glucose impurity	0.86	
2-Deoxy-D-Glucose	1.0	
Glucol impurity	2.03	1.3
Furan diol impurity	5.01	

Inject reference solution (b) and (c). The test is not valid unless the resolution between peaks due to glucose impurity and 2-deoxy-D-glucose is not less than 1.5 in the chromatogram obtained with reference solution (b) and signal- to-noise ratio is not less than 15 in the chromatogram obtained with reference solution (c).

Inject reference solution (c) the test solution. Run the chromatogram 10 times the retention time of the principal peak for test solution. The area of any peak corresponding to glucose impurity is not more than 10 times the area of the principal peak in the chromatogram obtained with reference solution (c) (1.0 per cent), the area of any peak corresponding to, each of, glucol impurity, furan diol impurity and any other secondary impurity is not more than 5 times the area of the principal peak in the chromatogram obtained with reference solution (c) (0.5 per cent) and the sum of the areas of all the secondary peaks is not more than 20 times the area of the principal peak in the chromatogram obtained with reference solution (c) (2.0 per cent)

Water (2.3.43). Not more than 1.0 per cent, determined on 0.5 g.

Sulphated ash (2.3.18). Not more than 0.1 per cent.

Assay. Determine by liquid chromatography (2.4.14).

Test solution. Dissolve 0.25 g of the substance under examination in *water,* with the aid of ultrasound, and dilute to 50.0 ml with *water*.

Reference solution. A 0.5 per cent w/v solution of *2-deoxy-D-glucose IPRS* in *water*.

Chromatographic system as described under Related substances.

Inject the reference solution. The test is not valid unless the relative standard deviation for replicate injections is not more than 2.0 per cent.

Inject the reference solution and the test solution.

Calculate the content of $C_6H_{12}O_5$.

Storage. Store protected from moisture.

Solubility. Freely soluble in *water*.