

Specification

D(+)-Galactose *BioChemica*

A1131

Solubility:	650 g/L (H ₂ O)
Physical Description:	Solid
Product Code:	A1131
Product Name:	D(+)-Galactose <i>BioChemica</i>
Specifications:	<p>Assay (HPLC): min. 98 %</p> <p>α20°C/D; 10 %, H₂O: +78° - +81.5°</p> <p>pH (10 %; H₂O): 4.5 - 7.0</p> <p>Heavy metals (as Pb): max. 0.001 %</p> <p>Insoluble matter: passes test</p> <p>Water (K.F.): max. 0.3 %</p> <p>A (1 cm/0.1 M in H₂O)</p> <p>260 nm: max. 0.05</p> <p>280 nm: max. 0.1</p>
WGK:	nwg
Storage:	RT
Molecular Formula:	C ₆ H ₁₂ O ₆
M:	180.16 g/mol
CAS:	59-23-4
EINECS:	200-416-4
CS:	29400000

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Comment

D-Galactose is an aldohexose that occurs naturally in the D-form in lactose, cerebrosides, gangliosides, and mucoproteins. In humans, absorption of galactose from food is mediated by Na/Glucose co-transporters. The monosaccharide is absorbed in the small intestine and catabolised in the liver. Galactose is converted through the Leloir pathway to galactose-1-phosphate, then to glucose-1-phosphate, and glucose-6-phosphate which can enter the glucose metabolism. Mutation of any of the enzymes of the conserved Leloir pathway can result in clinical deficiencies known as galactosemias. *Research and applications:* D-Galactose serves as substrate in enzyme studies (1, 2). Chronic D-Galactose exposure induces neurodegeneration in mice and *Drosophila* and has therefore been used as an aging model (3). Galactose might serve as a chaperone of alpha galactosidase and is therefore tested in treatments of the Fabry disease (4). The monosaccharide is used to some extent as a sweetener and dietary supplement. It is also used as an ultrasound contrast agent as the absorption by organs or tissues of the body is rather slow for certain preparations of Galactose.

Bibliography

(1) Doudoroff, M. (1962) *Methods Enzymol.* **5**, 339-341 D-Galactose dehydrogenase from *Pseudomonas saccharophila*.
(2) Dahms, A.S. & Anderson, R.L. (1972) *J. Biol. Chem.* **247**, 2222-2227 D-Fucose metabolism in a *Pseudomonad*. (3) Cui, X, Zuo, P, Zhang, Q, Li, X, Hu, Y, Long, J, Packer, L, Liu, J (2006) *Journal of neuroscience research* **84**, 647-654 Constant exposure to D-galactose induces memory loss, neurodegeneration, and oxidative damage in mice; R-alpha-lipoic acid shows protective effects. (4) Okumiya et al. (1995) *Biochem Biophys Res Commun.* **214**, 1219-24 Galactose stabilizes various missense mutants of alpha-galactosidase in Fabry disease.

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