



Accurate Mass: 238.087495
Percentage Composition: C 45.36%; H 7.61%; O 33.57%; S 13.46%
Use/Importance: Inducer of β -galactosidase activity in bacteria, used to detect lac gene activity
Physical Description: Cryst. or cryst. + 1H₂O
Melting Point: Mp 109-110.5°. Mp 126° (hydrate)
Optical Rotation: $[\alpha]_D^{20}$ -31.5 (c, 1 in H₂O)

>>**Derivative:** Ph glycoside

Synonym(s): Phenyl 1-thio- β -D-galactopyranoside

CAS Registry Number: 16758-34-2

Molecular Formula: C₁₂H₁₆O₅S
Molecular Weight: 272.321
Accurate Mass: 272.071845
Percentage Composition: C 52.93%; H 5.92%; O 29.38%; S 11.78%
Physical Description: Hemihydrate
Melting Point: Mp 123-124°
Optical Rotation: $[\alpha]_D$ -44.6 (c, 0.88 in MeOH)

>>**Derivative:** Ph glycoside, 2,3,4,6-tetra-Ac

Synonym(s): Phenyl 2,3,4,6-tetra-*O*-acetyl-1-thio- β -D-galactopyranoside

CAS Registry Number: 24404-53-3

Molecular Formula: C₂₀H₂₄O₉S
Molecular Weight: 440.47
Accurate Mass: 440.114105
Percentage Composition: C 54.54%; H 5.49%; O 32.69%; S 7.28%
Physical Description: Syrup
Optical Rotation: $[\alpha]_D$ +3.7 (c, 1.00 in CHCl₃)

>>**Derivative:** Ph glycoside, 3,4-*O*-isopropylidene

Synonym(s): Phenyl 3,4-*O*-isopropylidene-1-thio- β -D-galactopyranoside

CAS Registry Number: 120095-47-8

Molecular Formula: C₁₅H₂₀O₅S
Molecular Weight: 312.386
Accurate Mass: 312.103145
Percentage Composition: C 57.67%; H 6.45%; O 25.61%; S 10.26%
Physical Description: Prisms + 2H₂O
Melting Point: Mp 42-43°
Optical Rotation: $[\alpha]_D$ -6.8 (c, 0.52 in MeOH)

>>**Derivative:** Ph glycoside, 2,3,4,6-tetrapivaloyl, *S*-oxide

Synonym(s): Phenyl 2,3,4,6-tetra-*O*-pivaloyl- β -D-galactopyranosyl sulphoxide

CAS Registry Number: 157239-66-2

Molecular Formula: C₃₂H₄₈O₁₀S
Molecular Weight: 624.791
Accurate Mass: 624.29682
Percentage Composition: C 61.52%; H 7.74%; O 25.61%; S 5.13%
Use/Importance: Glycosylating agent
Other Data: 2.1:1 Diastereomeric mixture

>>**Derivative:** Ph glycoside, 3,4,6-tribenzyl, 2-pivaloyl, *S*-oxide

Synonym(s): Phenyl 3,4,6-tri-*O*-benzyl-2-*O*-pivaloyl- β -D-galactopyranosyl sulfoxide

Molecular Formula: C₃₈H₄₂O₇S
Molecular Weight: 642.812
Accurate Mass: 642.265125
Percentage Composition: C 71.00%; H 6.59%; O 17.42%; S 4.99%
Use/Importance: Glycosylating agent
Other Data: 2.1:1 Diastereomeric mixture