

R-Oxynitrilase

Mandelonitrile lyase
EC 4.1.2.10

Description: R-oxynitrilase catalyzes the formation of Mandelonitrile from benzaldehyde and cyanide

Origin: almond meal

Application: synthesis of (R)-cyanohydrins

Struktur: flavoprotein with FAD as prosthetic group [1]

Substrates/Products:

Substrates	Products
(D)-(+)-mandelonitrile	benzaldehyde + CN ⁻
2-furancarboxaldehyde	furan-3-yl-hydroxyacetonitrile
2-methylbenzaldehyde + HCN	2-hydroxy-(2-methylphenyl)-acetonitrile
2-nitrobenzaldehyde + HCN	2-hydroxy-(2-nitrophenyl)-acetonitrile
3,4-dimethoxybenzaldehyde + HCN	3,4-dimethoxymandelonitrile
3,4-methylenedioxybenzaldehyde + HCN	3,4-methylenedioxymandelonitrile
3-chlorobenzaldehyde + HCN	2-hydroxy-(3-chlorophenyl)-acetonitrile

[2]

Activity: > 100 U/ml (substrate: mandelonitrile; method: ASA Spezialenzyme GmbH)

Spezific activity: > 9 U/mg

Parameters of reaction: pH optimum 5,5 [3]
temperature optimum 25°C [4]

Order-No.: 2700

Form of delivery: yellow suspension, stabilized with 50% glycerin and < 3% potassium-phosphate-buffer

Storage: -20°C

- Literature:
- [1] Becker W., Pfeil E.: *Die Darstellung kristallisierter Oxynitrilase aus bitteren Mandeln.*
Naturwissenschaften **51**, 193 (1964)
 - [2] Becker W., Pfeil E.: *Über das Flavinenzym D-Oxynitrilase.*
Biochemische Zeitung **346**, 301-321 (1966)
 - [3] Xu, L.-L. Singh, B.K. ; Conn, E.E.: *Purification and characterization of Mandelonitrile lyase from Prunus lyonii.*
Arch. Biochem. Biophys., **250**, 322-328 (1986)
 - [4] Wehtje, E.; Adlercreutz, P.; Mattiasson, B.: *Activity and operational stability of immobilized mandelonitrile lyase in methanol/water mixtures.*
Appl. Microbiol. Biotechnol. **30**, 257-263 (1989)