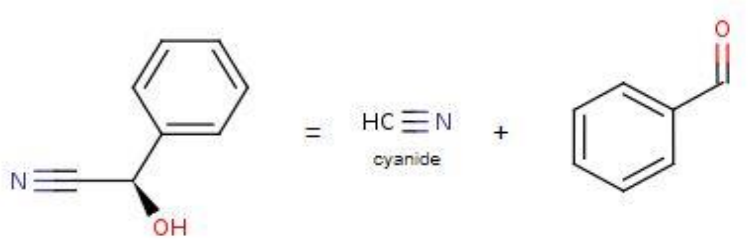
R-Oxynitrilase

Mandelonitrile lyase; E.C. 4.1.2.10

Description: R-oxynitrilase catalyses the formation of D-(+)-mandelic acid nitrile (2-hydroxy-2-phenylacetonitrile) from benzaldehyde and hydrogen cyanide (HCN) as well as the stereospecific cleavage of (S)-cyanohydrins.

Catalysed reaction:



(R)-Mandelonitrile → *Hydrocyanic acid + benzaldehyde*

Origin: *Almond bran*

Application: Synthesis of (R)-cyanohydrins, cleavage of amygdalin

Activity: > 50 U/ mL
(Substrate: Mandelonitrile)

Specific activity: > 1.5 U/ mg Protein

Parameters:

pH	Optimum: 5.5
Temperature	Optimum: 25°C

Structure: Flavoprotein with FAD as a prosthetic group

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Substrate/ products:

Substrates	Products
(D)-(+)-Mandelonitrile	Benzaldehyde + HCN^-
2-Furancarboxaldehyde+ HCN	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-Dimethoxymandelonitril
3,4-Methylendioxybenzaldehyde + HCN	3,4-Methylendioxymandelonitril
3-Chlorobenzaldehyde + HCN	2-Hydroxy-(3-chlorophenyl)-acetonitrile

Article-no.: 2700

Form of delivery: Yellow liquid, stabilized with 50% glycerine

Stability: Stable at -20°C

Storage: – 20°C

Literature:

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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)

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