

anaerobic carbon-monoxide dehydrogenase

Cat. No. EXWM-1227

Lot. No. (See product label)

Introduction

Description

This prokaryotic enzyme catalyses the reversible reduction of CO₂ to CO. The electrons are transferred to redox proteins such as ferredoxin. In purple sulfur bacteria and methanogenic archaea it catalyses the oxidation of CO to CO₂, which is incorporated by the Calvin-Benson-Basham cycle or released, respectively. In acetogenic and sulfate-reducing microbes it catalyses the reduction of CO₂ to CO, which is incorporated into acetyl CoA by EC 2.3.1.169, CO-methylating acetyl CoA synthase, with which the enzyme forms a tight complex in those organisms. The enzyme contains five metal clusters per homodimeric enzyme: two nickel-iron-sulfur clusters called the C-Clusters, one [4Fe-4S] D-cluster; and two [4Fe-4S] B-clusters. In methanogenic archaea additional [4Fe-4S] clusters exist, presumably as part of the electron transfer chain. In purple sulfur bacteria the enzyme forms complexes with the Ni-Fe-S protein EC 1.12.7.2, ferredoxin hydrogenase, which catalyse the overall reaction: CO + H₂O = CO₂ + H₂. cf. EC 1.2.5.3, aerobic carbon monoxide dehydrogenase.

Synonyms

Ni-CODH; carbon-monoxide dehydrogenase (ferredoxin)

Product Information

Form

Liquid or lyophilized powder

EC Number

EC 1.2.7.4

Reaction

CO + H₂O + 2 oxidized ferredoxin = CO₂ + 2 reduced ferredoxin + 2 H⁺

Notes

This item requires custom production and lead time is between 5-9 weeks. We can custom produce according to your specifications.

Storage and Shipping Information

Storage

Store it at +4 °C for short term. For long term storage, store it at -20 °C~-80 °C.