Creative Enzymes®

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 ℃ for short term. For long term storage, store it at -20 ℃~-80 ℃.