



## Product Information

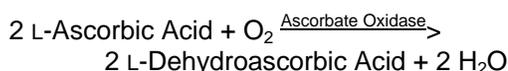
### Ascorbate oxidase from *Cucurbita* sp.

Product Number **A 0157**  
Storage Temperature 2-8 °C

EC 1.10.3.3  
CAS# 9029-44-1  
Synonyms: L-Ascorbate: oxygen oxidoreductase;  
Ascorbase

#### Product Description

This enzyme catalyzes the following reaction:



The enzyme is highly specific for L-ascorbic acid and a few analogs.<sup>1</sup> The pH optimum for enzymatic activity is in the range of pH 5.5 to 7.0. The activity at pH 4.5 and 8.3 is approximately 50% maximal activity.<sup>3</sup>

The enzyme exists as a dimer with a molecular weight of approximately 140 kDa (sedimentation equilibrium). The monomer molecular weight is approximately 65 to 70 kDa.<sup>2</sup> It is a multicopper oxidase containing approximately 8 copper atoms per molecule.<sup>3</sup>

The product is supplied as a lyophilized powder containing approximately 10% protein (Lowry), 10% salts, and 80% sucrose as stabilizer.

Specific Activity: 1,000 to 3,000 units per mg protein

Unit Definition: One unit will oxidize 1.0  $\mu$ mole of L-ascorbate to dehydroascorbate per minute at pH 5.6 at 25 °C.

#### Disclaimer

This product is for laboratory research use only. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### Preparation Instructions

The enzyme is reconstituted in 4 mM sodium phosphate buffer, pH 5.6, with 0.05% (w/v) bovine serum albumin for the Sigma enzymatic activity assay.

#### Storage/Stability

The product is very hygroscopic. Store the lyophilized powder desiccated at 2-8 °C. Prepare solutions fresh. Freeze-thaws of solutions may result in loss of activity.

#### Procedure

In Sigma's procedure for enzymatic activity, a 1.10 ml reaction mix is used. The final concentrations are 91 mM potassium phosphate, 0.45 mM L-ascorbic acid, 0.5 mM EDTA, 4 mM sodium phosphate, 0.005% (w/v) bovine serum albumin, and 0.012 - 0.024 unit of ascorbate oxidase. For a copy of the complete Sigma Quality Control Test Procedure, visit our website at [www.sigma-aldrich.com/enzymeexplorer](http://www.sigma-aldrich.com/enzymeexplorer).

#### References

1. Dayan, J., and Dawson, C. R., *Biochim. Biophys. Res. Commun.*, **73**, 451-458 (1976).
2. Tokuyama, K., et al., *Biochemistry*, **4**, 1362 (1965).
3. Nakamura, et al., *J. Biochem.*, **64**, 189-195, (1968).

RBG/MAM/NDH 4/03

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