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Frontier Specialty Chemicals, Inc. **Technical Data Sheet**
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Catalog Number: **T40808**

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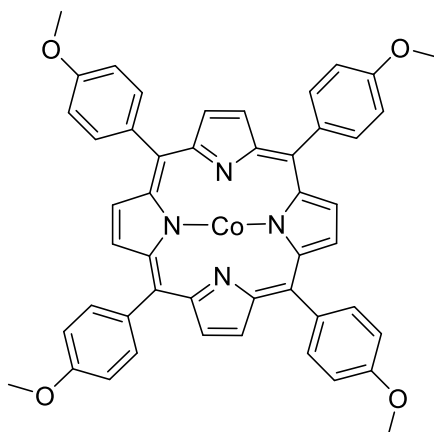
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For research use only

Not intended or approved for
diagnostic or therapeutic use.

Product Name: Co(II) meso-Tetra (4-methoxyphenyl) porphine (1-3% chlorin)

Catalog Number: T40808



Sizes Available: 1 g, 5 g, 25 g and larger sizes available

Molecular weight: 791.76 g/mol

Molecular Formula: C₄₈H₃₆CoN₄O₄

CAS Number: 28903-71-1

Storage: Store at room temperature and protect from light.

Synonyms:

Co(II) meso-Tetra (4-methoxyphenyl) Porphine (1-3% chlorin)

Field of Interest: Electrochemical Sensor for Arsenite, Molybdate; Electrochemical Oxygen Reduction, Catalysis, Organic Synthesis

Background: Co(II) meso-Tetra (4-methoxyphenyl) porphine (1-3% chlorin) has been used as a selective potentiometric sensor for arsenite and molybdate in aqueous media^{1,2}. Electrochemical oxygen reduction reaction activity has been observed with this porphyrin^{3,4}. C-O Bond cleavage of alcohols via visible light activation of cobalt alkoxy carbonyls derived from Co(II) meso-tetra(4-Methoxyphenyl)porphine⁵. Co(II) porphyrins are highly efficient catalysts towards

desulfurization of dibenzothiophene in fuel oils⁶. T(p-OMe)PPCo is an effective catalyst for the aerobic oxidative coupling of phenols⁷. Cobalt(II) porphyrins are effective catalysts for selective cyclopropanation of alkenes with ethyl diazoacetate⁸.

References:

- 1) Gupta, V.K., Agarwal, S.; PVC based 5,10,15,20-tetrakis (4-methoxyphenyl)porphyrinatocobalt(II) membrane potentiometric sensor for arsenite, *Talanta* **65**, **2005**, 730-734. <https://doi.org/10.1016/j.talanta.2004.07.043>
- 2) Gupta, V.K., Chandra, S., Chauhan, D.K., Mangla, R.; Membranes of 5,10,15,20-Tetrakis(4-Methoxyphenyl) Porphyrinatocobalt(TMOPP-Co) (I) as MoO₄²⁻- Selective Sensors. *Sensors* **2**, **2002**, 164-173. <https://doi.org/10.3390/s20500164>
- 3) Zhou, Y., Xing, Y.F., Wen, J., Ma, H.B., Wang, F.B., Xia, X.H.; Axial ligands tailoring the ORR activity of cobalt porphyrin. *Science Bulletin* **64**, **2019**, 1158-1166. <https://doi.org/10.1016/j.scib.2019.07.003>
- 4) Wang, Y.H., Schneider, P.E., Goldsmith, Z.K., Mondal, B., Hammes-Schiffer, S., Stahl, S.S. Bronsted Acid Scaling Relationships Enable Control Over Product Selectivity from O₂ Reduction with a Mononuclear Cobalt Porphyrin Catalyst. *ACS Cent. Sci.* **2019**, *5*, 6, 1024-1034. <https://doi.org/10.1021/acscentsci.9b00194>
- 5) Chambers, D.R., Juneau, A., Ludwig, C.T., Frenette, M., Martin, D.B.C.; C-O Bond Cleavage of Alcohols via Visible Light Activation of Cobalt Alkoxycarbonyls. *Organometallics* **2019**, *38*, *24*, 4570-4577. <https://doi.org/10.1021/acs.organomet.9b00552>
- 6) Tripathi, D., Yadav, I., Negi, H., Singh, R.K., Srivastava, V.C., Sankar, M.; Highly efficient Co(II) porphyrin catalysts for the extractive oxidative desulfurization of dibenzothiophene in fuel oils under mild conditions. *Journal of porphyrins and Phthalocyanines* **2021**, *25*, *1*, 24-30. <https://doi.org/10.1142/S1088424620500443>
- 7) Jiang, Q., Sheng, W., Tian, M., Tang, J., Guo, C.; Cobalt(II)-Porphyrin-Catalyzed Aerobic Oxidation: Oxidative Coupling of Phenols. *Eur. J. Chem.* **2013**, *10*, 1861-1866. <https://doi.org/10.1002/ejoc.201201595>
- 8) Huang, L., Chen, Y., Gao, G.Y., Zhang, X.P.; Diastereoselective and Enantioselective Cyclopropanation of Alkenes Catalyzed by Cobalt Porphyrins. *J. Org. Chem.* **2003**, *68*, *21*, 8179-8184. <https://doi.org/10.1021/jo035088o>

Hazardous Properties and Cautions: The toxicological and pharmacological properties of this compound are not fully known. For further information see the SDS on request. **Co(II) meso-Tetra (4-methoxyphenyl) porphine (1-3% chlorin)** is manufactured, shipped according to standard practices, and intended for research and development in a laboratory utilizing prudent procedures for handling chemicals of unknown toxicity, under the supervision of persons technically qualified to evaluate potential risks and authorized to enforce appropriate health and safety measures. As with all research chemicals, precautions should be taken to avoid unnecessary exposures or risks.

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