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## Product Information

### Cadmium chloride ACS Reagent

Product Number **28,765-2**  
Store at Room Temperature  
Exact replacement for Product Number C 2544

#### Product Description

Molecular Formula: CdCl<sub>2</sub>  
Molecular Weight: 183.3  
CAS Number: 10108-64-2  
Melting point: 568 °C<sup>1</sup>  
Synonyms: Caddy, Vi-Cad<sup>1</sup>

This product is designated as ACS Reagent grade and meets the specifications of the American Chemical Society (ACS) for reagent chemicals.

Cadmium chloride is a heavy-metal salt that is used in such applications as photography, dyeing, the manufacture of cadmium yellow, and galvanoplasty. This compound is hygroscopic and forms rhombohedral crystals.<sup>1</sup>

Cadmium chloride is harmful to the kidney and damages the proximal tubular epithelium.<sup>2,3</sup> A study on the genotoxicity of cadmium chloride on human lymphocytes has been reported.<sup>4</sup> Cadmium chloride has been shown to inhibit repair of DNA damage in CHO cells as induced by UV-radiation, methyl methanesulfonate, and N-methyl-N-nitrosourea.<sup>5</sup> Cadmium chloride has been used to investigate cadmium-binding hexapeptides that convey additional viability to *Escherichia coli* (strain TG1) when these hexapeptides are expressed on the cell surface, as fused to the outer membrane protein OmpA.<sup>6</sup>

Cadmium chloride has also been utilized in protein crystallization (Product No. 70437), such as in studies on acetolactate decarboxylase which use 10 mM cadmium chloride in the crystallization solution.<sup>7</sup>

#### Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

#### Preparation Instructions

This product is soluble in water (133 mg/ml), yielding a clear, colorless solution. The use of cadmium chloride in Tris buffers can lead to precipitation of the Tris-cadmium complex at pH ≥ 7.

#### References

1. The Merck Index, 12th ed., Entry# 1653.
2. Gennari, A., et al., Sensitive endpoints for evaluating cadmium-induced acute toxicity in LLC-PK1 cells. *Toxicology*, **183(1-3)**, 211-220 (2003).
3. Zalups, R. K., and Barfuss, D. W., Simultaneous coexposure to inorganic mercury and cadmium: a study of the renal and hepatic disposition of mercury and cadmium. *J. Toxicol. Environ. Health A.*, **65(19)**, 1471-1490 (2002).
4. Rozgaj, R., et al., Genotoxicity of cadmium chloride in human lymphocytes evaluated by the comet assay and cytogenetic tests. *J. Trace Elem. Med. Biol.*, **16(3)**, 187-192 (2002).
5. Fatur, T., et al., Cadmium inhibits repair of UV-, methyl methanesulfonate- and N-methyl-N-nitrosourea-induced DNA damage in Chinese hamster ovary cells. *Mutat. Res.*, **529(1-2)**, 109-116 (2003).
6. Mejare, M., et al., Selection of cadmium specific hexapeptides and their expression as OmpA fusion proteins in *Escherichia coli*. *Protein Eng.*, **11(6)**, 489-494 (1998).
7. Najmudin, S., et al., Purification, crystallization and preliminary X-ray crystallographic studies on acetolactate decarboxylase. *Acta Crystallogr. D Biol. Crystallogr.*, **59(Pt 6)**, 1073-1075 (2003).

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