



Frontier Specialty Chemicals, Inc.  
P.O. Box 31  
Logan, UT 84323-0031  
Phone: 1-435-753-1901

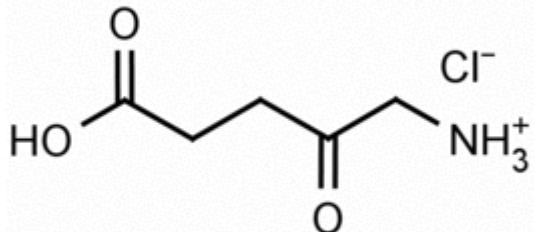
[www.frontiersci.com](http://www.frontiersci.com)  
[sales@frontiersci.com](mailto:sales@frontiersci.com)

**Technical Data Sheet**  
**Catalog Number: A167**

**For research use only**  
Not intended or approved for  
diagnostic or therapeutic use.

**Product Name:** delta-Aminolevulinic acid hydrochloride

**Catalog Number:** A167



**Sizes Available:** 125 mg, 500 mg, 1 g, 5 g, 10 g, 25 g, 100 g, and larger sizes available

**Molecular weight:** 167.59 g/mol

**Molecular Formula:** C<sub>5</sub>H<sub>9</sub>NO<sub>3</sub>·HCl

**CAS Number:** 5451-09-2

**Storage:** Store at 0 - 4 °C

**Synonyms:** 5 Aminolaevulinate, 5 Aminolevulinate, 5-Aminolaevulinate  
5-Aminolevulinate, Acid Hydrochloride, Aminolevulinic Acid, Aminolevulinic Acid, Delta-Aminolevulinic Acid, Aminolevulinic Acid Hydrochloride  
Delta Aminolevulinic Acid, Delta-Aminolevulinic Acid Hydrochloride, Aminolevulinic Acid, Levulan, 5-ALA

**Field of Interest:** Natural Products Synthesis, Porphyrias, Heme precursor

**Background:** **delta-Aminolevulinic acid** is an endogenous compound in the porphyrin synthesis pathways of heme and chlorophyll, and in photodynamic therapy, where 5ALA is being studied in different types of cancer <sup>1-3</sup>. It also is a main indicator of altered metabolism and indicator of porphyria disease and dioxin exposure, and found in the urine of experimental animals exposed to 2,3,7,8-tetrachlorodibenzo-p-dioxin (I) [1746-01-6], and in the urine of construction workers exposed to lead. <sup>4-6</sup>

**References:**

- 1) Ryter, S. W., Tyrrell, R. M., The heme synthesis and degradation pathways: role in oxidant sensitivity. Heme oxygenase has both pro- and antioxidant properties, Free Radical Biology & Medicine (2000), 28(2), 289-309.
- 2) Meskauskienė, Rasa, Nater, Mena, Goslings, David, Kessler, Felix, op den Camp, Roel, Apel, Klaus, FLU: a negative regulator of chlorophyll biosynthesis in *Arabidopsis thaliana*, Proceedings of the National Academy of Sciences of the United States of America (2001), 98(22), 12826-12831.
- 3) Kadish, Karl M., Smith, Kevin M., Guilard, Roger, Porphyrins as photosensitizers in photodynamic therapy, Porphyrin Handbook (2000), 6, 157-230.
- 4) Mauzerall, D., Granick, S., The occurrence and determination of δ-aminolevulinic acid and porphobilinogen in urine, Journal of Biological Chemistry (1956), 219, 435-46.
- 5) Kociba, R. J., Keyes, D. G., Beyer, J. E., Carreon, R. M., Wade, C. E., Dittenber, D. A., Kalnins, R. P., Frauson, L E., Park, C. N., et al., Results of a two-year chronic toxicity and oncogenicity study of 2,3,7,8-tetrachlorodibenzo-p-dioxin in rats, Toxicology and Applied Pharmacology (1978), 46(2), 279-303.
- 6) Patil, Neelam J., Bhatt, Pooja V., Patharkar, Sachin A., Nerurkar, Alka V., Surve, Pradeep N., Bhatia, Kapil, Determination of delta aminolevulinic acid levels in urine, a sensitive indicator of lead exposure in construction workers, Al Ameen Journal of Medical Sciences (2020), 13(3), 172-177.

**Hazardous Properties and Cautions:** The toxicological and pharmacological properties of this compound are not fully known. For further information see the SDS request. **delta-Aminolevulinic acid hydrochloride** 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.

**Warranty and Disclaimer:** Frontier Specialty Chemicals, Inc. warrants the product conforms to the specifications stated herein. In the event of nonconformity, Frontier will replace products or refund purchase price, at its sole option, and Frontier shall not be responsible for any other loss or damage, whether known or foreseeable to Frontier. No other warranties apply, express or implied, including but not limited to warranty of fitness for any purpose or implied warranty of merchantability. Purchaser is solely responsible for all consequences of its use of the product and Frontier assumes no responsibility therefore, including success of purchaser's research and development, or health or safety of any uses of the product.