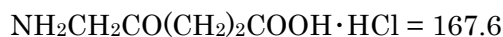




KIYAN PHARMA

Research Reagents

5-Aminolevulinic Acid Hydrochloride



Cas No. 5451-09-2

Product No. : ☐ AL-00-1 1 g
☐ AL-00-2 5 g
☐ AL-05-1 1 g (Cell Culture Tested)

Origin : fermentation

Form : Powder (crystal), easily soluble in water ($\geq 500\text{g/L}$), soluble in methanol, insoluble in ethanol.

Specification :

| Test items | Criteria | Test methods | 備考 |
|-------------------------------|--------------------------|---------------------------|--------------|
| Purity | $\geq 98.0\%$ | HPLC | - |
| Other amino acids | $\leq 1.0\%$ | HPLC | - |
| Ash content | $\leq 0.1\%$ | Residue on Ignition Test* | - |
| Heavy Metals (as Pd) | $\leq 20 \text{ ppm}$ | Limit test* | - |
| Moisture content | $\leq 0.5\%$ | Karl-Fischer method | Only AL-05-1 |
| General viable bacteria count | $\leq 100 \text{ cfu/g}$ | SCDLP agar medium 48 hrs | Only AL-05-1 |
| Fungal count | $\leq 100 \text{ cfu/g}$ | SCDLP agar medium 168 hrs | Only AL-05-1 |

* In accordance with our company's prescribed method.

Storage method :

Store at 2-8°C, protected from light. When storing as an aqueous solution, refer to the following points and absolutely avoid long-term storage. Quantitative methods in solution are known to include colorimetry (1) and high-performance liquid chromatography (2).

- Do not store high-concentration solutions ($\geq 1\%$).
- Very unstable at pH above 7. A 1% solution lasts 2 days at pH below 5. Stable at pH below 2.35 (1 month). (3)
- Decomposes in alkali to form a dimer (pyrazine) (irreversible). Decomposition temperature: 156-158°C.
- Sterilization by filtration is recommended.

Note :

- This reagent is an acidic substance. Be careful not to let the reagent or aqueous solution come into contact with your skin or mucous membranes.
- Operate it out of direct sunlight.

Reference :

5-Aminolevulinic acid is used in research fields such as the following. Please refer to the literature for information on applicable concentrations.

- High-level expression of heme enzymes (such as P-450) by microorganisms. (4)
- Research on growth-promoting activity and greening-enhancing activity for plants. (5)
- A component of culture media for microbial and animal cell cultures. (6)
- Research utilizing the generation of reactive oxygen species due to excessive porphyrin accumulation. (7)(8)
- Research on cancer diagnosis. (9)

Literature :

(1) Mauzerall D. *et al.* J. Biol. Chem. 219: 435-446 (1956). (2) Okayama A. *et al.* Clin. Chem. 36: 1494-1497 (1990). (3) Elfsson, B *et al.* Pharmaceutical Science, 7, 87-91, (1998). (4) Imai T. *et al.* J. Biol. Chem. 268, 19681-19689, (1993). (5) Hotta Y. *et al.* Plant Growth Regulation, 22, 109-114, (1997). (6) Nakayashiki T. *et al.* Genes Genet. Syst. 71, 237-241, (1996). (7) Rebeiz CA *et al.* Enzyme Microb. Technol. 6, 390-401, (1984). (8) Grant WE *et al.* The Lancet, 342, 147-148, (1993). (9) Kamasaki N. *et al.* J. Jpn. Soc. Laser Surgery Medicine, 22, 255-262, (2001).

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