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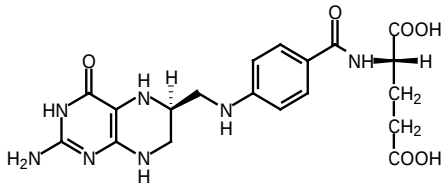
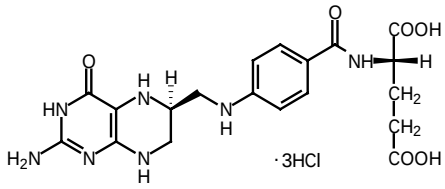
Schircks Laboratories

D A T A S H E E T

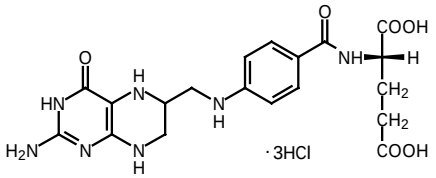
Tetrahydrofolic acid
Product No.'s 16.207-16.209



(6S)-5,6,7,8-Tetrahydrofolic acid
Product no. 16.207 6S-FH_4 CAS No. [71963-69-4]
$C_{19}H_{23}N_7O_6$ MW 445.4



(6S)-5,6,7,8-Tetrahydrofolic acid trihydrochloride
Product no. 16.208 6S-FH_4·3HCl CAS No. [150731-85-4]
$C_{19}H_{23}N_7O_6$·3HCl MW 554.8



(6R,S)-5,6,7,8-Tetrahydrofolic acid trihydrochloride (R/S ratio ≈ 1:1)
Product no. 16.209 6R,S-FH_4·3HCl CAS No. [135-16-0]
$C_{19}H_{23}N_7O_6$·3HCl MW 554.8

Chemical reduction of folic acid yields two diastereoisomers, 6R- and 6S-FH_4. 6S-FH_4 is the natural form of tetrahydrofolic acid. (6S)-5,6,7,8-Tetrahydrofolic acid and (6S)-5,6,7,8-Tetrahydrofolic acid trihydrochloride contain less than 0.6% of 6R-diastereoisomers.

Description	Beige powder.
Biochemical Functions	Folic acid itself is not biologically active. It is converted into tetrahydrofolic acid which is an important coenzyme in the body. This reacts further to form formyl-, methylene-, methenyl- and methyl-tetrahydrofolic acids, which, in turn, are responsible for the transfer of 1 carbon fragments in nature.
Solubility	6R,S-FH_4·3HCl and 6S-FH_4·3HCl are freely soluble in water. Its solubility is at least 40 g per 100 g of water (22°C). The pH of a 1 mM solution of 6R,S-FH_4·3HCl in water is 2.67. Product no.16.207 is a free acid and is practically insoluble in water. 10 mg of 6S-FH_4 can be dissolved in 10 ml of 0.01 N NaOH.

HPLC conditions

column:	eluant:	flow rate:	wavelength:
SAX	25 mM NaH_2PO_4, pH 7.5	1.5 ml/min	254 nm

Purity: HPLC	95.0% - 98.0% It is essential that solutions of FH_4 are prepared immediately before analysis (*see also*: stability section). Addition of DTT may improve the result (0.75 mg/ml eluant).
Stability	Dry in ampoules at -20°C, FH_4 is stable. It is very unstable in solution. It reacts with oxygen especially in neutral or alkaline solutions at room temperature. Solutions should be made as concentrated as possible, in oxygen free water, with the lowest possible pH and used immediately. In dissolving, the substance is rapidly degraded. Even after 5 minutes left open at room temperature a 1 mM 6R,S-FH_4·3HCl solution is degraded by more than 10%. After 45 minutes it is degraded by about 25%.
Storage	Keep the powder in ampoules at -20°C or colder. After an ampoule has been opened, the remainder should be kept in a tightly closed vial, in a freezer. Tetrahydrofolic acid in ampoules can be transported without the use of dry ice. Dry in ampoules, it is stable for several weeks at room temperature.
Uses	FH_4 is an important standard in analytical work and is also important in the diet of growing children and pregnant women. Our product is sold for laboratory use only.
Safety Information	Because of its acidic nature, prolonged inhalation of tetrahydrofolic acid should be avoided. Otherwise, there are no special precautions required in handling this product.
Literature	Chemical and biochemical studies on the coenzyme tetrahydrofolic acid. Douglas W. Young, Chemistry and Industry, 15 August, (1981), 556-561. The biochemistry of folic acid and related pteridines. R.L. Blakley, Amsterdam: North Holland, 1969.

Further data sheets can be found on our website www.schircks.ch