6-Hydroxymethylpterin

Product number 11.420 CAS number 712-29-8

Attention: ***6-Formylpterin is highly sensitive to light! 1)***
6-Hydroxymethylpterin is less sensitive to light. 2)
6-Formylpterin is not stable in basic solutions (Cannizzaro reaction?**) 3)**

To 7.9 g of 6-formylpterin are added 1.4 l of water 1). The suspension is mixed and NaOH 50% (about 8.8 g) is added until all is dissolved.
Immediately afterwards 3) HCl 1:1 is added until a slight precipitation remains.
Through a dropping funnel 0.5 N HCl are added to bring the pH value to 9.0.

Reduction of the 6-formylpterin to 6-hydroxymethylpterin with NaBH4:

With an excess of NaBH4 6-hydroxy-dihydropterin is formed. This happens probably only when the pH is lowered to 6. The oxidation products of 6-hydroxy-dihydropterin are not easily removed. Perhaps the amount of NaBH4 can be reduced.
Nitrogen is bubbled through the suspension to remove the hydrogen. Wear safety glasses!

2.8 g of NaBH4 are slowly added within about 5 hours in 3 portions.
From time-to-time HCl 1:1 is added to keep the pH at about 9.0.
The suspension is mixed overnight and nitrogen is furthermore bubbled through the suspension.
The pH is lowered by the addition of HCl 1:1 to 6.0 and set aside for three hours.
The supernatant is removed by suction and the remaining suspension with the precipitated
6-hydroxymethylylpterin is filtered through an 8 cm filtering funnel. The filter cake is rinsed with 100 ml of water and then dried in a vacuum desiccator over NaOH to give 3.5 g of 6-hydoxymethylpterin.

Recrystallisation:
To the raw 6-hydroxymethylpterin (pulverized and sieved) 1.3 l of water are added. In order to dissolve the 6-hydroxymehtylpterin NaOH 50% is added until pH 12.0 is reached.
1.0 g of activated carbon is added to the red solution and the mixture is stirred for 20 minutes.
The mixture is filtered through a 5 cm filtering funnel.
To the filtrate is added with stirring first HCl 1:1 and then slowly while stirring vigorously 0.5 N HCl until a pH of about 5.5 is reached.
In order not to get a to fine precipitate the solution is refluxed for 10 minutes and then is allowed to cool overnight.
The precipitated 6-hydroxymethylpterin is filtered through a 6 cm filtering funnel. The filter cake is slowly rinsed with 200 ml of water and dried in a vacuum desiccator over NaOH to give 2.5 g of 6-hydroxymethylpterin 2).

Purity: 98.2% (HPLC)

Description: light yellow powder

Data Sheet: There is a data sheet available for this compound.

Data sheets can be found in the price list by clicking on the product number of your choice.