

Preparation of Flour Samples.

Are there any specific samples preparation methods available for testing flour samples?

1. Ensure that the flour sample is uniformly milled to a fine grade.
2. Accurately weigh approximately 5 g of representative material into a 100 mL volumetric flask. After addition of approx. 60 mL of distilled water, stir the contents until fully dissolved or suspended, and fill up to the mark (100 mL) with distilled water. Filter the sample and apply an aliquot of the filtrate to the deproteinisation procedure using perchloric acid or trichloroacetic acid as described below.

Deproteinisation with perchloric acid:

1 M Perchloric acid:

(Sigma Cat No. 244252; MW 100.46; $d = 1.664$ (g/mL); 70% assay; 11.59 M)
Add 8.6 mL perchloric acid to 92.4 mL of distilled water and mix thoroughly.

1 M potassium hydroxide:

(Sigma Cat No. 60369; MW 56.11; 86% assay)
Add 6.5 g of potassium hydroxide pellets to approximately 80 mL of distilled water and stir to dissolve. Make to 100 mL with distilled water.

Deproteinise samples containing protein by adding an equal volume of ice-cold 1 M perchloric acid with mixing. Filter or centrifuge at 1,500 g for 10 min and adjust the pH of the supernatant to between 7 and 8 with 1 M KOH. Use the supernatant in the assay after appropriate dilution. Alternatively, use trichloroacetic acid.

Deproteinisation with trichloroacetic acid:

50 % (w/v) trichloroacetic acid (approx. 3 M):

(Sigma Cat No. 33731; MW 163.39)
Add 50 g of trichloroacetic acid to approximately 80 mL of distilled water and stir to dissolve. Make to 100 mL with distilled water.

Deproteinise samples containing protein by adding an equal volume of ice-cold 50 % (w/v) trichloroacetic acid with mixing. Filter or centrifuge at 1,500 g for 10 min and adjust the pH of the supernatant to between 7 and 8 with 1 M KOH. Use the supernatant in the assay after appropriate dilution. Alternatively, use perchloric acid.

Note: The final trichloroacetic acid concentration given in the procedure above is 25 % (w/v). For samples with lower protein contents the final trichloroacetic acid concentration may be reduced to as low as 10 % (w/v) by altering the ratio of trichloroacetic acid and sample appropriately.