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**Fluid fertilizers — De-aeration of  
suspension samples by film disentrainment**

*Engrais liquides — Désaération des échantillons de suspension par  
entraînement en couche mince*

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## Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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# Fluid fertilizers – De-aeration of suspension samples by film disentrainment

## 1 Scope

This International Standard specifies a procedure for the de-aeration of suspension samples for physical testing.

The method is not suitable if the sample contains more than a trace of free ammonia, if there is permanent decomposition in the suspension, or if the sample is too viscous.

## 2 Principle

Samples of suspensions may involve air being mixed in by stirring or shaking. Often this air diffuses out of the suspension very slowly because of the viscosity. To reduce the quantity of physically incorporated air, the suspension is subjected to a reduced pressure. To minimize the distances to be traversed by air bubbles emerging from the fluid, provision is made for thin-film disentrainment. Viscosity effects are reduced to a minimum when the fluid moves slowly.

## 3 Apparatus

Normal laboratory apparatus and, in particular, the following items.

3.1 **Rotary evaporator**, with a minimum capacity of 1 litre, capable of evacuation to a pressure of  $2 \times 10^4$  Pa.

3.2 **Water bath**, capable of being maintained at  $25^\circ\text{C} \pm 2^\circ\text{C}$ .

## 4 Procedure

Transfer about 500 g of the sample to a clean and dry 1 litre evaporator flask and weigh the flask and contents to the nearest 0,1 g.

Connect the flask containing the sample to the rotary evaporator (3.1). Set the speed of rotation at a minimum to create a thin film of suspension on the wall of the flask and to avoid mixing in more air.

Place the body of the flask in the water bath (3.2) set at  $25^\circ\text{C}$ .

NOTE 1 The cooling system of the evaporator should not be used, so as to avoid loss of water by temperature differences.

NOTE 2 Higher temperatures should be avoided to prevent gas production by decomposition of fertilizer ingredients, for example urea.

Reduce the pressure in the system to about  $4 \times 10^4$  Pa.

Operate the system for approximately 15 min.

Gently allow the system to come to atmospheric pressure before disconnecting the flask.

Dry the outside of the flask and reweigh the flask and contents to the nearest 0,1 g.

NOTE 3 The loss in mass during the process should not exceed 0,1 %.

Take samples for physical testing with care.

If the test is not to be performed immediately, close the flask and store under ambient conditions for no longer than 3 days.