

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 304

SURFACE ACTIVE AGENTS DETERMINATION OF SURFACE TENSION AND INTERFACIAL TENSION

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 304, *Surface Active Agents—Determination of Surface Tension and Interfacial Tension*, was drawn up by Technical Committee ISO/TC 91, *Surface Active Agents*, the Secretariat of which is held by the Association Française de Normalisation (AFNOR).

Work on this question by the Technical Committee began in 1960 and led in the same year to the adoption of a Draft ISO Recommendation.

In March 1961, this Draft ISO Recommendation (No. 438) was circulated to all the ISO Member Bodies for enquiry. It was approved by the following Member Bodies:

Australia	France	Mexico
Austria	Germany	Poland
Belgium	Hungary	Portugal
Canada	Iran	Romania
Chile	Ireland	Spain
Colombia	Israel	United Kingdom
Czechoslovakia	Italy	U.S.S.R.
		Yugoslavia

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in May 1963, to accept it as an ISO RECOMMENDATION.

SURFACE ACTIVE AGENTS

DETERMINATION OF SURFACE TENSION
AND INTERFACIAL TENSION

FOREWORD

Surface and interfacial tensions are fundamental properties of solutions of surface active agents. The measurement of these characteristics, however, does not allow any suppositions as to their detergency, wetting, foaming activities, etc.

Indeed, no connection can be established between the performance properties of the surface active agents and the surface or interfacial tensions of their solutions.

1. SCOPE

The purpose of this ISO Recommendation is to set out a method for the determination of:

- (1) the surface tension of aqueous or organic solutions of surface active agents and mixtures containing one or more surface active agents;
- (2) the interfacial tension of systems of two immiscible phases containing surface active agents.

These determinations also apply to the measurement of surface tensions of pure liquids or solutions, and to that of the interfacial tension of binary liquid systems other than those mentioned above.

2. PRINCIPLE

The method consists in measuring the force which should be exerted vertically on a plate or a stirrup in contact with the surface of the solution being studied in order to draw up the film that is formed.

3. APPARATUS

3.1 Constitution of apparatus

The apparatus consists of the following:

3.1.1 *Tensiometer*

The tensiometer, which should be capable of being fitted with plates or stirrups, consists essentially of three parts:

- (a) horizontal platform which can be moved vertically downwards or upwards by means of a micrometer screw;
- (b) a balance to give a continuous measure of the force applied either to the plate or to the stirrup, and at least capable of a precision of 0.05 dyn/cm;*
- (c) a device for indicating the force expressed in dynes per centimetre of the perimeter of the plate or the stirrup, transmitted to the balance.

* Dyne per centimetre (dyn/cm) is the unit of the CGS system. The unit of the International System (SI) is the newton per metre (N/m):
1 N/m = 10³ dyn/cm.