International Standard 7106

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Liquefied anhydrous ammonia for industrial use — Determination of oil content — Gravimetric and infra-red spectrometric methods

Ammoniac anhydre liquéfié à usage industriel — Dosage de l'huile — Méthode gravimétrique et méthode spectrométrique dans l'infrarouge

First edition — 1985-06-15

UDC 661.51 : 543.21 : 543.42 : 543.74 **Ref. No. ISO 7106-1985 (E)**

Descriptors : industrial products, chemical compounds, liquid ammonia, chemical analysis, determination of content, oils, test equipment, gravimetric analysis, spectrophotometric analysis.

Price based on 5 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7106 was prepared by Technical Committee ISO/TC 47, *Chemistry*.

Printed in Switzerland

Liquefied anhydrous ammonia for industrial use — Determination of oil content — Gravimetric and infra-red spectrometric methods

WARNING — Liquefied anhydrous ammonia is a highly corrosive, toxic substance, which boils at −33,3 °C at standard atmospheric pressure. Its action on the skin is strongly corrosive, producing severe and painful burns. Contact with the eyes can cause permanent blindness.

Its vapour is strongly irritant to the mucous membrane and eyes, and produces a suffocating effect on the respiratory tract.

In concentrations of 16 to 25 % (*V*/*V*), gaseous anhydrous ammonia forms explosive mixtures with air.

Personnel responsible for handling the product shall be fully informed as to its dangerous character and the precautions to be taken.

Operators shall wear thick rubber gloves, a rubber apron and full face and head protection, and shall be provided with a protective gas-mask fitted with a filter for ammonia.

The operations described shall be carried out only in a well-ventilated fume-cupboard.

For further information, see the appropriate sections of ISO 3165.

1 Scope and field of application

This International Standard specifies two methods for the determination of the oil content non volatile at about 105 °C, of liquefied anhydrous ammonia for industrial use, namely:

— a gravimetric method;

— an infra-red spectrometric method.

The gravimetric method is applicable to products having an oil content equal to or greater than 10 mg/kg.

The infra-red spectrometric method, being more sensitive, is applicable to products having an oil content greater than 1 mg/kg.

2 References

ISO 3165, *Sampling of chemical products for industrial use — Safety in sampling.*

ISO 7103, *Liquefied anhydrous ammonia for industrial use — Sampling — Taking a laboratory sample.*

3 Principle

Evaporation at ambient temperature of a test portion of liquefied anhydrous ammonia, extraction, using carbon tetrachloride, of the oil contained in the residue and determination of the oil content by method 3.1 or 3.2.

3.1 Gravimetric method

Evaporation of the organic solvent and weighing of the residue.

3.2 Infra-red spectrometric method

Spectrometric measurement of the absorbance of the organic phase at a wavelength of approximately 3,42 µm, that is, the most intense absorption band corresponding to the asymmetric vibration of the CH radicals.

4 Reagents and materials

During the analysis, unless otherwise stated, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

4.1 Carbon tetrachloride, giving no absorbance at a wavelength of approximately 3,42 µm.

WARNING — Carbon tetrachloride is toxic. Avoid breathing vapour. Avoid contact with skin and eyes.