

INTERNATIONAL STANDARD

ISO
8312-1

First edition
1988-12-15



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

Rubber compounding ingredients — Stearic acid —

Part 1:

Definition and test methods

*Ingrédients de mélange du caoutchouc — Acide stéarique —
Partie 1: Définition et méthodes d'essai*

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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 8312-1 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*.

ISO 8312 consists of the following parts, under the general title *Rubber compounding ingredients — Stearic acid*:

Part 1: Definition and test methods

Part 2: Specification

Annexes A to K form an integral part of this part of ISO 8312.

Rubber compounding ingredients — Stearic acid —

Part 1: Definition and test methods

WARNING — All recognized health and safety precautions shall be observed when carrying out the procedures specified in this part of ISO 8312 and in the International Standards listed in table 1.

1 Scope

This part of ISO 8312 defines stearic acid for use as a compounding ingredient in the rubber industry and specifies the test methods for determining its properties.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8312. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8312 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 660 : 1983, *Animal and vegetable fats and oils — Determination of acid value and of acidity.*

ISO 662 : 1980, *Animal and vegetable fats and oils — Determination of moisture and volatile matter content.*

ISO 842 : 1984, *Raw materials for paints and varnishes — Sampling.*

ISO 935 : 1988, *Animal and vegetable fats and oils — Determination of titre.*

ISO 1042 : 1983, *Laboratory glassware — One-mark volumetric flasks.*

ISO 3596-1 : —¹⁾, *Animal and vegetable fats and oils — Determination of unsaponifiable matter — Part 1: Method using diethyl ether extraction (Reference method).*

ISO 3596-2 : —¹⁾, *Animal and vegetable fats and oils — Determination of unsaponifiable matter — Part 2: Rapid method using hexane extraction.*

ISO 3657 : 1977, *Animal and vegetable oils and fats — Determination of saponification value.*

ISO 3961 : 1979, *Animal and vegetable oils and fats — Determination of iodine value.*

ISO 4058 : 1977, *Magnesium and its alloys — Determination of nickel — Photometric method using dimethylglyoxime.*

ISO 5508 : 1978, *Animal and vegetable fats and oils — Analysis by gas-liquid chromatography of methyl esters of fatty acids.*

ISO 5509 : 1978, *Animal and vegetable fats and oils — Analysis by gas-liquid chromatography of methyl esters of fatty acids.*

ISO 5794-1 : 1984, *Rubber compounding ingredients — Silica, precipitated, hydrated — Part 1: Non-rubber tests.*

ISO 6685 : 1982, *Chemical products for industrial use — General method for determination of iron content — 1,10-Phenanthroline spectrophotometric method.*

ISO 7780 : 1987, *Rubber and rubber latices — Determination of manganese content — Sodium periodate photometric methods.*

ISO 8053 : 1986, *Rubber and latex — Determination of copper content — Photometric method.*

3 Definition

For the purposes of this part of ISO 8312, the following definition applies.

stearic acid (for use in the rubber industry): A mixture of straight-chain saturated fatty acids composed substantially of stearic acid in the form $C_{17}H_{35}COOH$ and palmitic acid in the form $C_{15}H_{31}COOH$.

1) To be published.

4 Sampling

Sampling shall be carried out in accordance with the procedure in ISO 842 for dry powders, using a stainless steel sampling device.

5 Physical and chemical properties

The physical and chemical properties shall be determined according to the methods of test listed in table 1.

Table 1 — List of physical and chemical properties of stearic acid and the methods used for their determination

Property	Test method
Acid value, mgKOH/g	ISO 660
Saponification value, mgKOH/g	ISO 3657
Titre value, °C	ISO 935
Fatty acids, C ₁₆ to C ₁₈ including unsaturates, % (m/m) total	ISO 5508 and ISO 5509
Matter volatile at 105 °C ± 3 °C, % (m/m)	ISO 662, Oven method
Ash at 550 °C ± 25 °C, % (m/m)	Annex A
Iodine value, g/100 g	ISO 3961
Mineral acidity, cm ³ /100 g	Annex F
Copper, mg/kg	Annex B or G ¹⁾
Manganese, mg/kg	Annex C or H ¹⁾
Iron, mg/kg	Annex D or J ¹⁾
Unsaponifiable matter, % (m/m)	ISO 3596-1 or ISO 3596-2
Nickel, mg/kg	Annex E or K ¹⁾
1) For speed and simplicity the methods given in annexes B, C, D and E are recommended. Where an atomic absorption spectrometer is not available, the molecular absorption spectrometric methods given in annexes G, H, J and K may be used.	