
**Rubber, raw — Determination of bound
acrylonitrile content in acrylonitrile-
butadiene rubber (NBR) —**

**Part 2:
Kjeldahl method**

*Caoutchouc brut — Détermination du contenu en acrylonitrile lié dans le
caoutchouc acrylonitrile-butadiène (NBR) —*

Partie 2: Méthode Kjeldahl



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 24698-2 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

ISO 24698 consists of the following parts, under the general title *Rubber, raw — Determination of bound acrylonitrile content in acrylonitrile-butadiene rubber (NBR)*:

- Part 1: *Combustion (Dumas) method*
- Part 2: *Kjeldahl method*

Rubber, raw — Determination of bound acrylonitrile content in acrylonitrile-butadiene rubber (NBR) —

Part 2: Kjeldahl method

WARNING — Persons using this part of ISO 24698 should be familiar with normal laboratory practice. This part of ISO 24698 does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

CAUTION — Certain procedures specified in this part of ISO 24698 may involve the use or generation of substances, or the generation of waste, that could constitute a local environmental hazard. Reference should be made to appropriate documentation on safe handling and disposal after use.

1 Scope

This part of ISO 24698 specifies a method for the determination of the bound acrylonitrile content in NBR by an automatic analyser which uses the Kjeldahl method.

NOTE Parts 1 and 2 of this International Standard may not necessarily give the same result for any given rubber sample.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1407:1992, *Rubber — Determination of solvent extract*

ISO 1795, *Rubber, raw natural and raw synthetic — Sampling and further preparative procedures*

3 Principle

The nitrogen in a sample of raw rubber is converted into an ammonium salt by digestion with potassium sulfate, sulfuric acid and a copper sulfate catalyst. Ammonia is then released by the addition of strong alkali and steam-distilled into boric acid solution and titrated with standard volumetric acid solution.

4 Reagents and materials

4.1 Reference material: ammonium sulfate, purity $\geq 99,5\%$.

4.2 Standard volumetric acid solutions:

- sulfuric acid solution, $0,05\text{ mol/dm}^3$;
- hydrochloric acid solution, $0,05\text{ mol/dm}^3$.

4.3 Sulfuric acid, $\rho = 1,84\text{ g/cm}^3$.