

Insulating liquids — Determination of acidity —

Part 2: Colourimetric titration

The European Standard EN 62021-2:2007 has the status of a
British Standard

ICS 29.040.10

National foreword

This British Standard is the UK implementation of EN 62021-2:2007. It is identical to IEC 62021-2:2007.

The UK participation in its preparation was entrusted to Technical Committee GEL/10, Fluids for electrotechnical applications.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2007

© BSI 2007

ISBN 978 0 580 57720 8

Amendments issued since publication

Amd. No.	Date	Comments

English version

**Insulating liquids -
Determination of acidity -
Part 2: Colourimetric titration
(IEC 62021-2:2007)**

Liquides isolants -
Détermination de l'acidité -
Partie 2: Titrage colorimétrique
(CEI 62021-2:2007)

Isolierflüssigkeiten -
Bestimmung des Säuregehaltes -
Teil 2: Kolorimetrische Titration
(IEC 62021-2:2007)

This European Standard was approved by CENELEC on 2007-07-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 10/692/FDIS, future edition 1 of IEC 62021-2, prepared by IEC TC 10, Fluids for electrotechnical applications, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62021-2 on 2007-07-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2008-04-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2010-07-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62021-2:2007 was approved by CENELEC as a European Standard without any modification.

CONTENTS

INTRODUCTION.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 Principle	6
5 Reagents.....	6
5.1 Titration reagent.	6
5.2 Titration solvent.....	7
5.3 Potassium hydrogen phthalate, primary standard	7
5.4 Standard hydrochloric acid solution.....	7
5.5 Alkali Blue 6B indicator solution	7
5.6 Cobalt nitrate solution.....	7
6 Apparatus.....	7
6.1 Titration vessel.....	7
6.2 Stirrer.....	7
6.3 Burette	7
7 Sampling	7
8 Procedure	8
8.1 Standardization of alcoholic potassium hydroxide solution	8
8.2 Blank titration	8
8.3 Sample titration	9
9 Calculation of results	9
10 Precision	9
10.1 Repeatability	9
10.2 Reproducibility.....	10
11 Report.....	10
Annex A (informative) Determination of acidity in electrical insulating oils by photometric titration	11
Annex ZA (normative) Normative references to international publications with their corresponding European publications.....	16
Figure A.1 – Molecular structure of para-naphtolbenzein indicator in (I) acidic media and (II) basic media	14
Figure A.2 – UV spectra of para-naphthol-benzein indicator in toluene/2- propanol/water solution in (a) acidic media, (b) basic media.....	15

INTRODUCTION

The standardized method given in IEC 62021-1 is a method for measurement of acidity in used and unused mineral oil and is a potentiometric titration requiring special instrumentation for measurement of acidity. Historically, acidity of insulating oil was measured by colourimetric titration as described in IEC 60296, 1982 edition. With the revision of IEC 60296, the colourimetric titration was deleted as that method used high volumes of sample and solvent, generating undesirable volumes of waste.

However, there is still a market requirement for having colourimetric titration as many labs use this method.

Health and safety

This International Standard does not purport to address all the safety problems associated with its use. It is the responsibility of the user of the Standard to establish appropriate health and safety practices and determine the applicability of regulatory limitations prior to use.

The mineral oils which are the subject of this standard should be handled with due regard to personal hygiene. Direct contact with eyes may cause slight irritation. In the case of eye contact, irrigation with copious quantities of clean running water should be carried out and medical advice sought.

Some of the tests specified in this standard involve the use of processes that could lead to a hazardous situation. Attention is drawn to the relevant standard for guidance.

This standard involves mineral oils, chemicals and used sample containers. The disposal of these items should be carried out in accordance with current national legislation with regard to the impact on the environment. Every precaution should be taken to prevent the release into the environment of mineral oil.