INTERNATIONAL STANDARD ISO 5662

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Petroleum products — Electrical insulating oils — Detection of corrosive sulphur

Produits pétroliers — Huiles isolantes électriques — Détection du soufre corrosif

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FOREWORD

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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.

International Standard ISO 5662 was developed by Technical Committee ISO/TC 28, *Petroleum products*, and was circulated to the member bodies in November 1976.

It has been approved by the member bodies of the following countries :

Australia	Ghana	Poland
Austria	Hungary	Portugal
Belgium	India	Romania
Brazil	Iran	South Africa, Rep. of
Bulgaria	Ireland	Spain
Canada	Israel	Sweden
Chile	Japan	Turkey
Czechoslovakia	Korea, Rep. of	United Kingdom
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France	Netherlands	U.S.S.R.
Germany	Philippines	

No member body expressed disapproval of the document.

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Petroleum products — Electrical insulating oils — Detection of corrosive sulphur

0 INTRODUCTION

Mineral insulating oils may contain substances that cause corrosion under certain conditions of use. The test method specified in this International Standard is designed to detect objectionable quantities of free sulphur and corrosive sulphur compounds.

In most of their uses insulating oils are continually in contact with metals that are subject to corrosion. Since the presence of detrimental corrosive sulphur compounds will result in deterioration of these metals to an extent dependent upon the quantity and type of corrosive agent and the time and temperature factors, the detection of these undesirable impurities, even though not in quantitative terms, is a means for recognizing the hazard involved.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the detection of corrosive sulphur compounds in electrical insulating oils of petroleum origin, by subjecting copper to contact with the oil under prescribed conditions.

2 REFERENCE

ISO 2160, *Petroleum products — Corrosiveness to copper — Copper strip test.*

3 REAGENTS

During the analysis, use only reagents of recognized analytical grade.

3.1 Acetone, sulphur-free.

3.2 Diethyl ether.

CAUTION — Acetone and diethyl ether are toxic, volatile, flammable solvents. They should be used under a ventilated hood or in a fume cupboard and where the vapour cannot contact sources of ignition. Suitable precautions should be taken for the storage of the diethyl ether and for its disposal after use.

3.3 Nitrogen gas : commercial cylinders of nitrogen gas are satisfactory for this purpose.

4 APPARATUS

4.1 Hot-air oven or **oil bath,** capable of being heated to, and controlled at, 140 ± 2 °C.

A circulating hot-air oven is preferred.

CAUTION — When an oil bath is used, great care should be taken to avoid any kind of hazard from vapours, oil spillage and fire.

4.2 Bottles, 250 ml, made of chemically resistant glass, with narrow mouths and fitted with ground glass stoppers, capable of holding 270 to 280 ml when filled completely to the stopper. Bottles of such capacity are required in order to allow sufficient space for expansion of the oil.

Borosilicate glass bottles have been found to be satisfactory for this purpose.

4.3 Electrolytic sheet copper, 0,125 to 0,250 mm in thickness.

4.4 Polishing materials, consisting of 63 μm silicon-carbide paper or cloth, 90 μm silicon-carbide powder and pharmaceutical grade absorbent cotton (cotton wool).

5 PREPARATION OF APPARATUS

5.1 Cleaning of bottles

Bottles (4.2) shall be chemically clean. Remove any oil from the bottles by rinsing them with solvents, then wash them with a phosphate-type cleaning agent. Rinse the bottles with tap water, then with distilled water, and dry them in an oven.