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BSI Standards Publication

# Lubricants, industrial oils and related products (Class L) — Family D (Compressors)

Part 2: Specifications of categories DAG, DAH and DAJ (Lubricants for flooded rotary air compressors)

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# National foreword

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

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TECHNICAL SPECIFICATION

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# Lubricants, industrial oils and related products (Class L) — Family D (Compressors) —

## Part 2: Specifications of categories DAG, DAH and DAJ (Lubricants for flooded rotary air compressors)

*Lubrifiants, huiles industrielles et produits connexes (Classe L) — Famille D (Compresseurs) —*

*Partie 2: Spécifications des catégories DAH, DAI et DAJ (Lubrifiants pour compresseurs d'air rotatifs à injection d'huile)*

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 28, *Petroleum and related products, fuels and lubricants from natural or synthetic sources*, Subcommittee SC 4, *Classifications and specifications*.

A list of all parts in the ISO 6521 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.


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# Introduction

Lubricants for compressors are used in various compressor designs. The lubricants for these applications can vary in composition; from straight mineral oils to more complex blends, based on mineral oils, synthetic oils (e.g. poly α-olefins, esters, poly-glycols), with appropriate antioxidants, rust and corrosion inhibitors, extreme-pressure and anti-wear additives, possibly associated with detergent and dispersing agents.

In flooded rotary air compressors, the compressor oil is injected with the air at the inlet port. The oil serves as a coolant and limits the air temperature increase due to compression, allowing higher compression rates in one stage. The oil is submitted to high oxidative stresses; the oil/air mixture is submitted to temperatures up to 100 °C and even more. It is important to limit oil degradation.

In addition, oil has to be separated from the air at the exit of the compressor; this separation is achieved using coalescing filters. Oil oxidation has the effect of disturbing the functioning of these filters, leading to pressure drop increase and loss of the separating efficiency and, as a consequence, the oil consumption increase. Oil oxidation stability is therefore of utmost importance.

Presently, there is no method making consensus to assess the oxidation stability of flooded rotary compressor oils (see Annex B). Waiting for the development of a sound and accepted method, a technical specification is proposed.

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**TECHNICAL SPECIFICATION** **ISO/TS 6521-2:2021**

# Lubricants, industrial oils and related products (Class L) — Family D (Compressors) —

# Part 2: Specifications of categories DAG, DAH and DAJ (Lubricants for flooded rotary air compressors)

## 1 Scope

This document specifies the minimum requirements for mineral or synthetic based lubricants, as delivered, and intended for use in flooded rotary air compressors (vane and screw).

This document can be read in conjunction with ISO 6743-3.

NOTE For the purposes of this document, the term "% (*m/m*)" is used to represent the mass fraction of a material.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 2160, *Petroleum products — Corrosiveness to copper — Copper strip test*

ISO 2592, *Petroleum and related products — Determination of flash and fire points — Cleveland open cup method*

ISO 2719, *Determination of flash point — Pensky-Martens closed cup method*

ISO 2909, *Petroleum products — Calculation of viscosity index from kinematic viscosity*

ISO 3016, *Petroleum and related products from natural or synthetic sources — Determination of pour point*

ISO 3104, *Petroleum products — Transparent and opaque liquids — Determination of kinematic viscosity and calculation of dynamic viscosity*

ISO 3170, *Petroleum liquids — Manual sampling*

ISO 3448, *Industrial liquid lubricants — ISO viscosity classification*

ISO 3675, *Crude petroleum and liquid petroleum products — Laboratory determination of density — Hydrometer method*

ISO 4259-2, *Petroleum and related products — Precision of measurement methods and results — Part 2: Interpretation and application of precision data in relation to methods of test*

ISO 6247, *Petroleum products — Determination of foaming characteristics of lubricating oils*

ISO 6296, *Petroleum products — Determination of water — Potentiometric Karl Fischer titration method*

ISO 6614, *Petroleum products — Determination of water separability of petroleum oils and synthetic fluids*

ISO 6618, *Petroleum products and lubricants — Determination of acid or base number — Colour-indicator titration method*

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