

# PLANT ENGINEERING'S Interchangeable lubricants

Joseph L. Fossett, Senior Editor, Plant Engineering Magazine

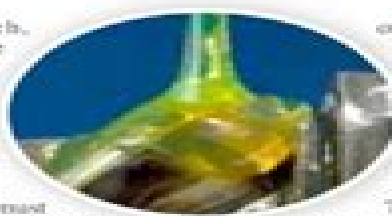
**W**hen, where, how much, and with what — these are the fundamental questions that have to be answered in equipment lubrication. The answers are normally provided by the builders of process and manufacturing equipment.

However, maintenance personnel must sometimes address the “with what” question when finding substitutes for previously used lubricants. This exclusive guide, published at 3-yr intervals, provides quick identification of major lubricant sources and cross referencing of products.

The ideal lubricant would last forever and retain all of its properties. In reality, leaks, evaporation, heat, oxidation, and contamination combine to limit its service life. Properly answering the “when” question requires monitoring, by means of oil analysis, which is a fundamental component of modern lubrication and preventive/predictive maintenance programs.

Regular laboratory analysis indicates the health of both lubricant and machine. Viscosity, contamination, oxidation, acidity, and metals content are examples of parameters analyzed.

The “where” and “how much” concerns are good candidates for the visual approach to total productive maintenance. For example, lube fittings, filler caps, oil cans, and grease guns can be color-coded for the type



of lubricant and the point of application. Captive plastic dirt caps for neck fittings are available in a variety of colors. Color-coding is often carried over to lube diagrams, which are laminated and attached to equipment or carried on lube routes.

## Using the guide

This exclusive guide presents products from 118 companies who responded to our request for information. Some chose not to respond and you will find them missing. Product names, listed in each category, were provided by the manufacturers.

Presenting the data does not reflect the quality of the lubricant, imply the performance expected under particular operating conditions, or serve as an endorsement. Lubricant and equipment manufacturers should be consulted for specific applications or questions.

## Viscosity a key factor

Viscosity is the property most widely accepted for identifying lubricants within a category. This characteristic serves as the basis for *PLANT ENGINEERING* magazine's product listings. Viscosity can be specified in several ways. The Viscosity/grade comparison chart compares commonly used systems. In this guide, lubricants within each category are arranged according to ISO viscosity grade, with the corresponding Saybolt viscosity shown for reference.

Viscosity/grade comparison chart

| ISO viscosity grade | Kinematic viscosity<br>Cst @ 40°C | Saybolt viscosity<br>SUS @ 100 F | Gear lubricant specification | EP gear lubricant | Worm gear lubricant |
|---------------------|-----------------------------------|----------------------------------|------------------------------|-------------------|---------------------|
| 2                   | 1.98-2.42                         | 32                               | -                            | -                 | -                   |
| 3                   | 2.69-3.52                         | 36                               | -                            | -                 | -                   |
| 5                   | 4.14-5.56                         | 46                               | -                            | -                 | -                   |
| 7                   | 5.12-7.48                         | 50                               | -                            | -                 | -                   |
| 10                  | 9-11                              | 68                               | -                            | -                 | -                   |
| 15                  | 13.5-16.5                         | 75                               | -                            | -                 | -                   |
| 22                  | 19.8-24.2                         | 100                              | -                            | -                 | -                   |
| 32                  | 28.8-35.2                         | 150                              | -                            | -                 | -                   |
| 46                  | 41.4-50.6                         | 215                              | AGMA 1                       | -                 | -                   |
| 68                  | 61.2-74.8                         | 315                              | AGMA 2                       | EP 2              | -                   |
| 100                 | 90-110                            | 460                              | AGMA 3                       | EP 3              | -                   |
| 150                 | 135-165                           | 700                              | AGMA 4                       | EP 4              | -                   |
| 220                 | 198-242                           | 1000                             | AGMA 5                       | EP 5              | -                   |
| 320                 | 288-352                           | 1500                             | AGMA 6                       | EP 6              | -                   |
| 460                 | 414-506                           | 2150                             | AGMA 7                       | EP 7              | Comp 7              |

Note: This guide covers only mineral oil-based products. A similar viscosity guide is published for synthetic lubricants (PE, July 2003, p. 46, PEI 0003). The guide is available on our web site at [plantengineering.com](http://plantengineering.com). Email the authors, and then select the July 2003 issue.

# Plant Engineering Magazine Interchangeable Lubricants Guide

**Albert A Gayle**



## **Plant Engineering Magazine Interchangeable Lubricants Guide:**

## **Plant Engineering Magazine Interchangeable Lubricants Guide** Book Review: Unveiling the Magic of Language

In an electronic digital era where connections and knowledge reign supreme, the enchanting power of language has become more apparent than ever. Its power to stir emotions, provoke thought, and instigate transformation is actually remarkable. This extraordinary book, aptly titled "**Plant Engineering Magazine Interchangeable Lubricants Guide**," published by a very acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound effect on our existence. Throughout this critique, we will delve to the book is central themes, evaluate its unique writing style, and assess its overall influence on its readership.

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web the reaction in our example above would be written as  ${}^6_3\text{Li} + {}^4_2\text{He} \rightarrow {}^{10}_5\text{B} + {}^1_0\text{n}$  balancing a radioactive decay equation in balancing a nuclear equation it is important to remember that the sum of all the mass numbers and atomic numbers given on the upper left and lower left side of the element symbol respectively must be equal for both sides of the

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