

2019-2020

LUBES'N'GREASES FACTBOOK



A SUPPLEMENT TO *LUBES'N'GREASES* MAGAZINE
AUGUST 2019 VOLUME 25 ISSUE 9

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group II
aramcoPRIMA®

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EDITOR'S LETTER

PICTURES WORTH A THOUSAND DATA POINTS



CAITLIN JACOBS

Welcome to the eleventh annual Lubes'n'Greases Factbook.

This timely reference includes industry statistics and trends in lubricants, base oils and additives for both the U.S. and global markets. Curious about the sales numbers for oil change shops? We've got them. Wondering how electrification might affect the heavy-duty engine oil market? See Page 12. Looking for a refresher on the basics of base oil or an overview of recent mergers and acquisitions? It's in here. Need to know how to license your transmission fluid or register your food-grade grease? Check Page 24.

Raw data can be difficult to grasp, so we've put the information in graphic form wherever possible. My gratitude goes to Director of Creative Ricardo Lianez for his colorful and clear presentation of Factbook data. Editors Michele Persaud and Will

Beverina also contributed significant time and effort (as did co-founder Lisa Tocci, who still likes to pop into the office from time to time).

We extend our thanks to the many industry colleagues who have shared data with us for the Factbook, including experts at Infineum International, Fuchs Petrolub, Kline & Co., Pathmaster Marketing, SGH Consulting, Power Systems Research and many more.

For additional copies of the Factbook—either print or digital—to share with your customers, shareholders, suppliers, employees, etc., please visit our website: www.LubesnGreases.com/factbook.

Caitlin Jacobs

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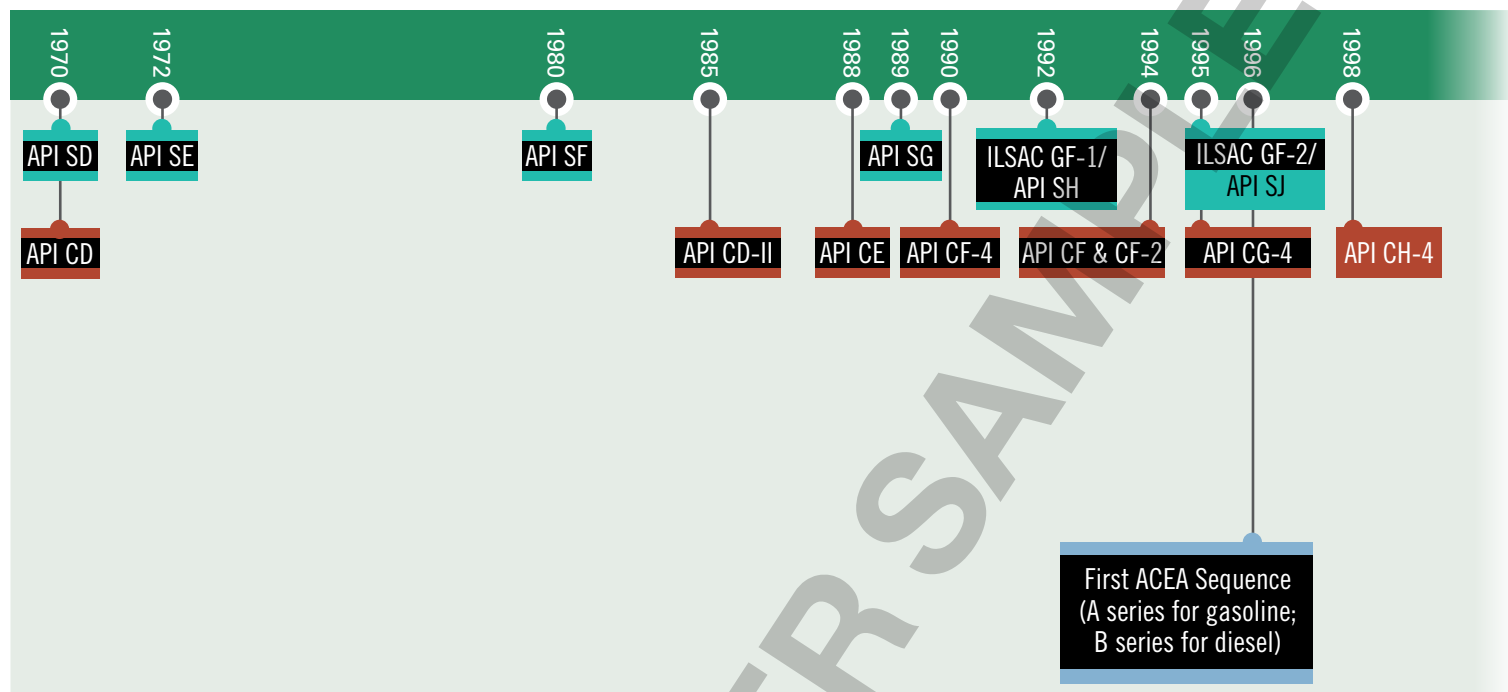
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ENGINE OIL CATEGORY TIMELINE

As demands on engine oils continue to mount, the pressure on oil formulators increases. Upgrades are costly, complicated and increasingly frequent. The timeline below illustrates the sheer number of engine oil categories required to meet today's demands compared to less than a half of a century ago.



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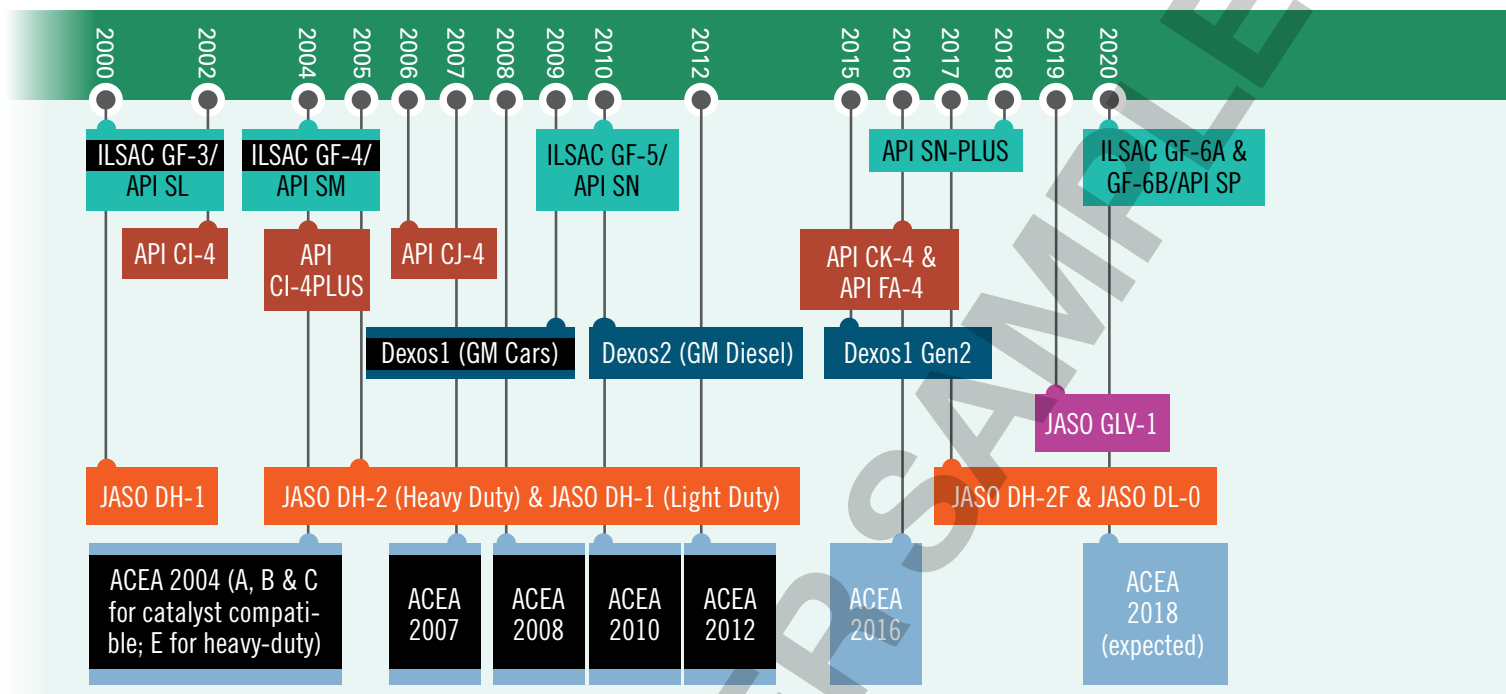
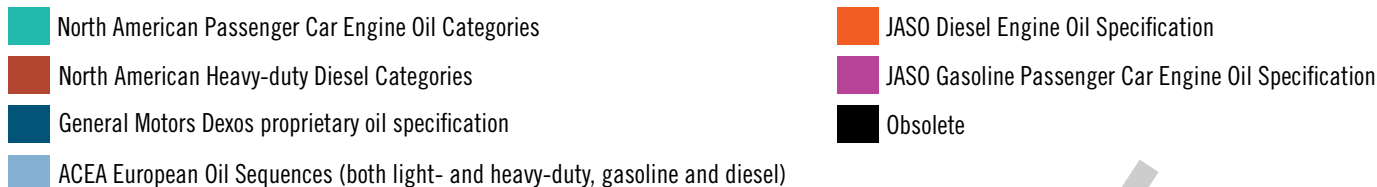
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RUBIS + KENOLKOBIL

Rubis purchased all issued shares of KenolKobil Plc for \$0.23 per share. KenolKobil claims to be East Africa's leading downstream player, with about 350 retail outlets across the sub-region. The company distributes lubricants, aviation fuels, liquid propane gas and bitumen in Kenya, Burundi, Ethiopia, Uganda, Rwanda and Zambia.



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FEBRUARY 2019

RELADYNE X 4 DEALS

Cincinnati, Ohio-based lubricant distributor RelaDyne acquired Mansura, Louisiana-based Rachel Oil Co. and Columbus, Mississippi-based Dutch Lubricants, adding distribution centers in Mississippi, Alabama and Louisiana. In April, it swept up Jasper, Alabama-based mining lubricant provider Jasper Oil, and in June it grabbed Legacy Fueling and Lubricants, headquartered in Victoria, Texas.

MARCH 2019

SAUDI ARAMCO X 2 DEALS

Saudi Aramco bought a 70 percent stake in fellow Saudi petrochemical company Sabic for \$69.1 billion. Both companies supply a variety of chemicals used by the lubricants industry. In April, Saudi Aramco purchased a 17 percent stake in South Korean refiner Hyundai Oilbank for \$1.2 billion with the option to buy an additional 2.9 percent stake. Hyundai Oilbank and Shell have a 13,000 b/d, joint-venture Group II base oil plant in Daesan, South Korea.

CALUMET – BIOSYNTHETIC TECHNOLOGIES

Calumet Specialty Products Partners sold its share of Biosynthetic Technologies—barely a year after making a \$3.8 million investment in the technology startup that converts plant oils into synthetic base stocks. Calumet and its partner The Heritage Group, a privately held portfolio of several companies, had teamed up to acquire Biosynthetic Technologies in mid-2018. In selling its portion to The Heritage Group, Calumet realized a \$5 million gain.

STR TECOIL + FORTUM

Finnish rerefiner STR Tecoil acquired the used oil collection business of Fortum, a Finnish renewable energy company. STR Tecoil now holds 50 percent of the used oil collection in Finland.

APRIL 2019

BITBURGER + AVISTA

Bitburger Holding GmbH bought a 45 percent stake of Avista Oil AG from the

two existing shareholders, Core Link GmbH and Nord Holding. Meanwhile, another shareholder, Skion GmbH, increased its stake in Avista from 35 percent to about 45 percent. The rest of the company's shares (10 percent) remain in the hands of Dr. Weinberger Management & Consult GmbH.

IDEMITSU + SHOWA

Japan's Idemitsu Kosan Co. and Showa Shell Sekiyu K.K. merged to become the second-largest lubricant supplier in Japan. The new company is called Idemitsu Kosan Co., but business will be conducted under the trade name of Idemitsu Showa Shell. Total sales, including other oil and petroleum business, are about \$52 billion.

MAY 2019

PETROCHOICE + SUPERIOR

Fort Washington, Pennsylvania-based lubricants distributor PetroChoice acquired Mobil lubricants distributor Superior Petroleum of Crown Point, Indiana, which serves the automotive and industrial industries in northwest Indiana and the Chicago area.

PETRONAS + BRB

Petronas Chemicals Group Bhd of Malaysia acquired Netherlands-based lube oil additive manufacturer BRB International B.V.'s holding company for \$182 million. BRB manufactures a full range of lubricant additives for automotive and industrial applications.

JUNE 2019

AMALIE + LUBRICATING SPECIALTIES

Tampa, Florida-based lubricants manufacturer Amalie Oil Co. acquired the U.S. assets of Lubricating Specialties Co., the West Coast's largest private-label lubricant blender, including its three production facilities in the Los Angeles area. Not included in the deal: Lubricating Specialties Co. Jamaica Ltd, which operates one blending plant in Jamaica and aims to open a second there in early 2020.

CHEVRON + NESTE

Chevron will make Group III base oils in

Richmond, California, and Pascagoula, Mississippi, and supply them to Neste, which will market the materials under the Nexbase brand. Neste said the Group III oils produced by Chevron will be integrated into its existing product slate and will qualify for finished lubricant approvals held by oils produced at Neste's wholly owned plant in Finland, and its Bahrain joint venture with Bahrain Petroleum Co.

TAKE 5 + ADVANCE

Charlotte, North Carolina-based Take 5 Oil Change announced its acquisition of Advance Kwik Lube, which operates 25 fast-lube locations in Texas. ■



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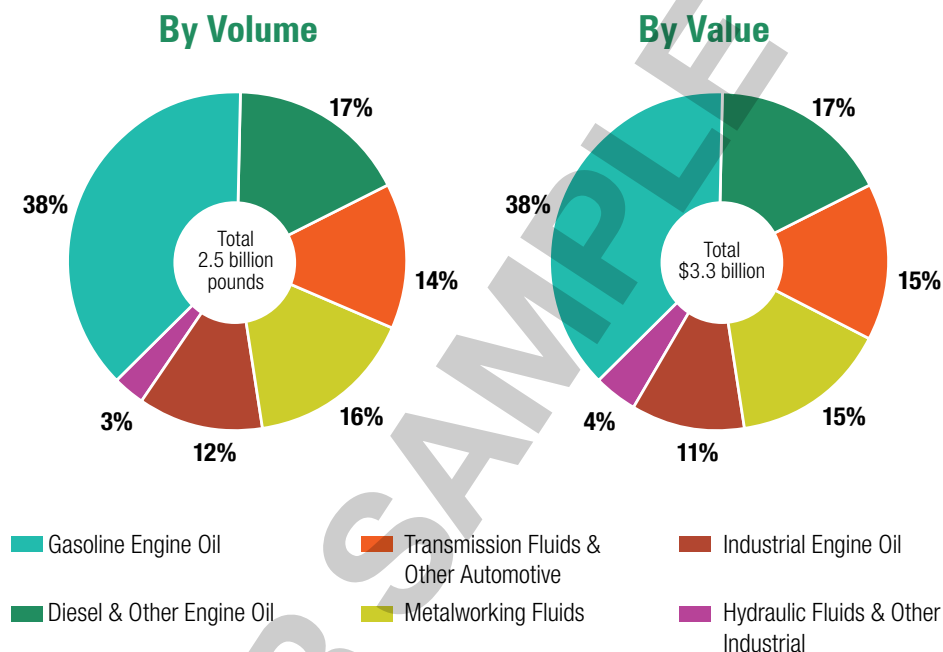


ADDITIVES: CONSUMPTION AND CHEMISTRIES

Additives make up varying proportions of finished lubricants. Metalworking fluids tend to contain the most, at 10–40% of the formulated product. Automotive engine oils follow with 15–25% additives, and grease contains anywhere from 0–10%. Industrial oils rely heavily on the quality of their base oil, with many using 2% additives at most.

U.S. Lubricant Additive Demand Share

Automotive lubricants are responsible for about 70 percent of additive demand.



Source: Freedonia Group

Principal Additive Chemistries

The following table outlines the various functions additives perform in lubricants, as well as their mode of action and some of the principal chemical types used. Generally, additives function in one of three ways: protection of metallic surfaces, modification of finished oil properties, or protection of base stocks.

FUNCTION	MODE OF ACTION	KEY CHEMICAL TYPES
Dispersants	Chelation of insolubles	Alkyl Succinimides, Alkyl Succinates, Alkyl Phenol Amines
Detergents	Surfactancy and micelle formation	Alkyl Metallic Sulfonates, Alkyl Metallic Phenates, Alkyl Metallic Salicylates
Antiwear	Formation of low-friction species on metal surfaces	Metallic Organo Dithiophosphates, Sulfurized Organics
Antioxidants	Oxidation chain inhibitors, peroxide decomposers	Metallic Organo Dithiophosphates, Alkyl Metallic Sulfonates
Anti-corrosion	Metal surface protection	Alkyl Phenols, Alkyl Amines, Metallic Organo Dithiophosphates
Antifoam	Reduction of surface tension	Silicones, Polymeric Acrylates
Demulsifier	Separate water from oil	Ethoxylated or Propoxylated Polyamines or Polyols
Friction Modifier	Reduces surface roughness to facilitate oil flow	Sulfurized Organics, Specific Metallic Salts of Sulfurized and Phosphor-sulfurized Organics
Pour Point Depressants	Modifies wax structures in oil to improve low-temperature flow	Poly Methacrylates, Naphthalene Derivatives
V.I. Improvers or Modifiers	Differential temperature-related solubility in oil	Poly Methacrylates, Ethylene-propylene Copolymers
Extreme Pressure (EP)	Formation of low melting compounds on surfaces	Sulfurized Fats and Oils, Organo-phosphorus Compounds

Source: Lubes'n'Greases



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