

AGCO®

Lubricants and Oils

Reference Guide



AGCO® PARTS BRAND • MASSEY FERGUSON® BRAND

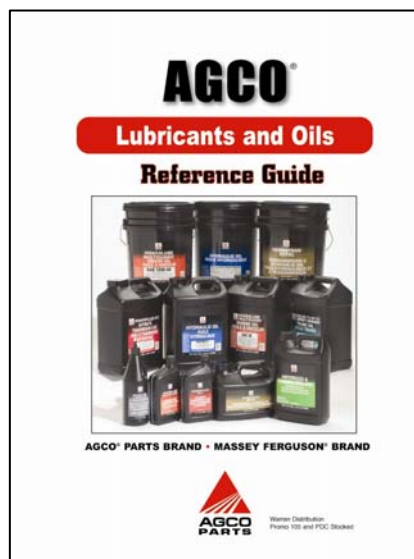


Warren Distribution
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AGCO® Parts > Parts Documents > Catalogs > Promotional



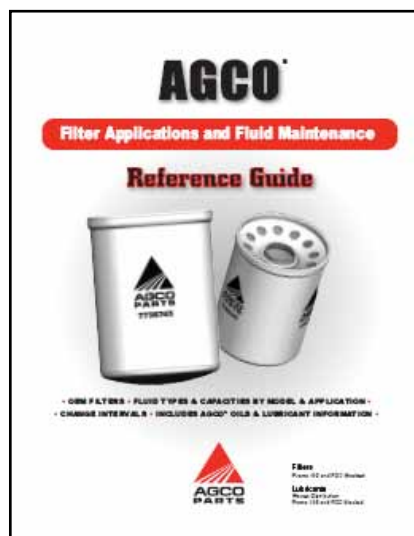
AGCO® Lubricants and Oils
Reference Guide
Part No. 79022617

Related Catalog

**If you liked Lubricants and Oils,
you'll like this one, too...**

The **AGCO® Filter Applications and Fluid Maintenance Reference Guide** includes filter and fluid specifications for early model, vintage and current AGCO® family of brands equipment, including AGCO® tractor, Challenger® and Massey Ferguson® equipment, as well as Ag-Chem® RoGator and Terra-Gator® applicators, and Spra-Coupe® sprayers.

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AGCO® Filter Applications
and Fluid Maintenance
Reference Guide
Part No. 79023666D

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While AGCO® has made every effort to catalog this information correctly, the possibility for error exists. Please verify each listing with your parts book or service manual.

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Notes

Introduction

AGCO® Lubricants and Oils Reference Guide

The AGCO® Lubricants and Oils Reference Guide is intended to help you select the right product for your customer's needs. Included in this guide you will find:

- A complete product listing, including AGCO® part numbers and package quantities
- Ideas for promoting AGCO® Parts and Massey Ferguson® Lubricants & Oils
- Updated product specifications, features, and benefits for each product, including the latest API (American Petroleum Institute) service ratings
- Associated terminology

This product brings together several strong lubricant brands from the AGCO® family, extending the strength of the Permatran®, Multiguard®, Powerlube, Gearlube and Powerfluid brands across the entire line. The black container serves as a backdrop for the splash of color by product family group. This color allows for fast on-shelf identification by your customers.



The updated AGCO® parts logotype (left) is being transitioned onto packaging as supplies are depleted, as is required regulatory verbiage, which will slightly alter the overall design but not its colorful impact.

Product

AGCO® Antifreeze
AGCO® Gearlube
AGCO® Gearlube M1103 Transmission Oil
AGCO® Grease
AGCO® Hydraulic Oil (*including Preferred 55®*)
AGCO® Permatran® 821XL Transmission and Hydraulic Oil
AGCO® Powerfluid 411 Automatic Transmission Fluid
AGCO® Powerlube Multiguard® Engine Oil
AGCO® Synthetic Transmission Fluid

Color

Light Green
Gray
Turquoise
Dark Green
Blue
Gold
Red
Orange
Yellow

In addition to being offered as AGCO® Parts brand, select products (T&H and engine oils, various greases) are also available as Massey Ferguson® brand. These part numbers are clearly identified in this guide. Product formulations for these products are identical to their AGCO® counterparts; Massey Ferguson® products (with a few noted exceptions) are available via Direct Ship order.

Group II Base Stocks: Longer Life, Drain Intervals

Higher-performance Group II Base Stocks form the basis for most AGCO® lubricant products. Overall, Group II Base Stocks handle heat better than do Group I stocks for longer life and longer drain (service) intervals.



AGCO® Permatran® 821XL
T&H Oil
1 qt / 0.946L
Part No. 841824M1



Massey Ferguson® Permatran®
T&H Oil
1 qt / 0.946L
Part No. 841824D1

Continued, Next Page

The benefits of Group II base stocks include:

- Better oxidation stability – improved handling at higher temperatures
- Higher Viscosity Index – resists viscosity changes with changes in temperature
- Longer drain intervals – longer service time between required oil changes.

Here are how the product categories are now formulated:

- All multi-viscosity, straight weight, and anti-wear products – Group II Base Stock
- AGCO® Gearlube (SAE 90, 80W-90, 85W-140), AGCO® Special High-Pressure Worm Gear Lubricant, and Preferred 55® Hydraulic Oil – a special Group I and Group II Base Stock Mix
- AGCO® Powerfluid 411 ATF – Group II Base Stock; formulation meets “H” specifications. This means factory and service fills are now identical quality.

Promoting AGCO® Lubricants and Oils

One key to success with AGCO® Lubricants and Oils is promotion. AGCO® Parts and Massey Ferguson® Lubricants and Oils are formulated for the exacting requirements set by AGCO® engineers for our wholegoods equipment brands. Our distributor, Warren Distribution, uses the additive packages, fortifiers and specifications our engineers demand. No other manufacturer can make that claim.

Together, we need to maintain and build the value you help set with your initial tractor, combine or hay tool sale to a customer. That trust and relationship can continue with the quality and reliability of AGCO® and Massey Ferguson® brand oils and lubricants.

The blends and formulations used in AGCO® Lubricants and Oils are of the highest quality, meeting and, often, exceeding the requirements set by major industrial equipment and engine suppliers.

So, if you think you have to beat, price-wise, every lubricant product that's for sale at every convenience, grocery or hardware store, you have set your expectations too low. You, and AGCO®, bring more value to your customer than does a convenience store. You are worth more than a low priced product imitation.

And **that** is definitely worth promoting.

**Make These Your
PRIMARY COLORS**



Outside, AGCO® Lubricants and Oils now include a splash of color, by product type, so you can instantly identify your favorite. Permatran® 821XL? Go gold. Powerlube Multiguard®? That's orange. Powerfluid®? Simply red. Inside, you'll find the quality and performance you'd expect from AGCO® lubricants... many of which now feature Group II base oils for longer drain intervals and extended life.

See us about AGCO® Lubricants and Oils... the ones specified for AGCO® tractors, Ag-Chem®, Challenger® and Massey Ferguson® equipment, as well as other fine AGCO® brands.

Save 10% THIS MONTH ONLY ON 5-gal Permatran® 821XL 10W-30 Part No. 841813M1

Super-De-Duper Farm Sales

183 Lubricant Way Barney, Wisconsin T: 608-555-1212 • F: 608-555-1222	146 Ferris Wheel Lisa, Wisconsin T: 608-554-1212 • F: 608-554-1222
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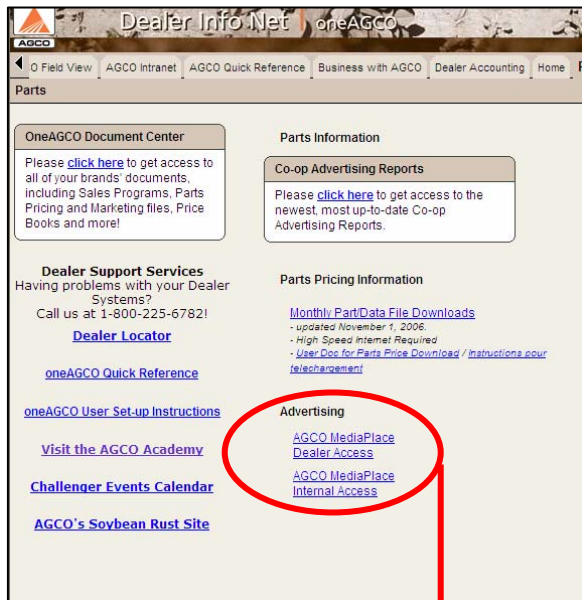
Promotion Materials: www.agcomediaplace.com

Whether you're looking for a photograph of a specific lubricant product, or for an ad you can use in your local newspaper or in a self-prepared direct mailer, www.agcomediaplace.com is the place to start. You should direct your newspaper and magazine contacts there as well.

Public access allows access to photographs and documents that include press releases.

Media access requires a password (a link allows qualified personnel to register for access), which allows accessibility to more content including advertisements.

Dealers and Company Personnel should access the site through www.oneagco.com using links located on various tabs within the site.



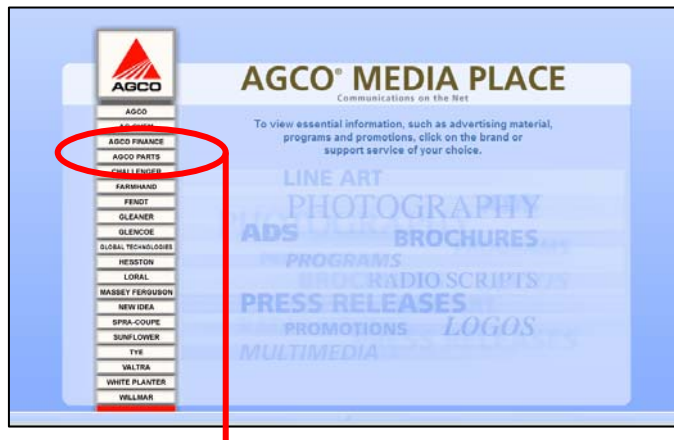
- Links are located on the **Parts tab** as well as the Sales & Marketing tab.

Select from dozens of professionally staged photographs, suitable for newspaper and magazine reproduction.

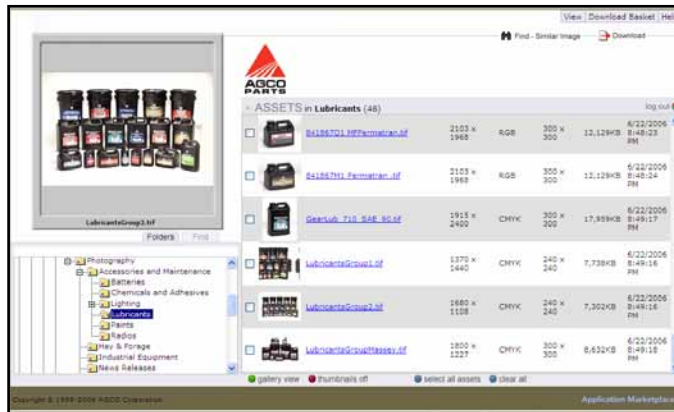
New images and advertisements are added periodically, so check back often.



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Click on **AGCO®** Parts...



...And you'll have access to professional photography, illustrations and advertisements.

National Advertising

This ad ran in the AGCO® *Advantage* brand magazine during 2006; a slightly modified version referencing Massey Ferguson® applications appeared in *MF Today*.

You can find a version of this ad appropriate for use in local and regional publications on www.agcomediaplace.com > AGCO® Parts > AGCO® Parts > Advertising > Co-op Ads.

**Make These Your
PRIMARY COLORS**



Outside, AGCO® Oils and Lubricants now include a splash of color, by product type, so you can instantly identify your favorite. Permabran® 821XL? Go gold. Powerlube Multiguard®? That's orange. Powerfluid? Simply red.

Inside, you'll find the quality and performance you'd expect from AGCO lubricants... many of which now feature Group II base oils for longer drain intervals and extended life.

See us about AGCO® Oils and Lubricants. The ones specified for AGCO® tractors, Gleaner® combines, Hesston® hay tools and other fine AGCO brands.



Service Sticker / Planned ServiceSM, PMITM



When you run your Planned ServiceSM or PMITM program, or for in-season work on customer equipment, be certain to have plenty of Service Stickers on-hand to leave a subtle, friendly reminder of future service schedules.

Each static-cling decal includes two write-on areas for including the customer's service date and hour or mile information.

The unobtrusive sticker adheres neatly to glass, but also removes easily. Each sticker measures 1.5" x 2.5" (38.1mm x 63.5mm) and features black print on a clear transparent background. Order Part No. 79023281 to receive a package of 100.

*This service sticker is available for order from the PDC.
Order Part No. 79023281.*

Printed in USA 10/06



**AGCO
PARTS**

DATE LAST SERVICED
DATE DU DERNIER ENTRETIEN

MILES/HOURS
MILLES/HEURES

PART NO./NO. DE PIÈCE
79023281

Merchandising Materials

Counter mats (*below*) and wall posters (*right*) are available for promoting the quality and breadth of the AGCO® Lubricants and Oils line.

Each counter mat (*below*) measures 18" x 24"

Each poster (*right*) measures 24" x 36"

Poster fits a standard AGCO® poster frame*.

To receive counter mats or posters, contact Dani Marquardt: 630.406.3320
Supplies are limited.

E-mail: dani.marquardt@agcocorp.com



AGCO®
◀ Orange ▶



Massey
Ferguson®
◀ Red ▶



Challenger®
◀ Yellow ▶



* Poster frame available for order.
Reference Part No. 79014376 on your
AGCO® Parts stock order.



An Important Receiving Note...

Check Each Lubricant Shipment Before the Driver Leaves

Here are important reminders for receiving your oil and lubricant shipments from AGCO® Parts and Warren Distribution, our supplier for the full range of AGCO® and Massey Ferguson® brand product.

Taking a few moments to thoroughly document each delivery receipt **before** the driver leaves is important for you and for AGCO®. Should your order be shorted or damaged, this can only be rectified when noted on the Delivery Receipt with your signature. This is standard freight carrier policy, which dictates that shipping discrepancies or damage must be documented and verified by the driver at the time the order is delivered.



Check that half- and full- truckload shrink-wrapping and/or seal are intact.

- ☐ **A truckload shipment** should arrive with the doors sealed and the palletized product shrink-wrapped. **Check to ensure the seal is unbroken and the shrink-wrap intact.** If either is broken or torn, note on the Delivery Receipt.

- ☐ **A half-truckload CCX shipment** should arrive with the palletized product shrink-wrapped. A CCX Delivery Receipt (*right*) includes a box for indicating, Yes or No, whether shrink-wrap has been torn or broken.

The CCX Delivery Receipt includes an area indicating Shrink-Wrap Intact? ☐ Yes ☐ No



Check each shipment for shortages or damage.

Conduct an on-site joint inventory of the shipment with the driver. The driver will verify any discrepancies or damage and note on the Delivery Receipt. You then sign the amended Delivery Receipt.

While this process can be time-consuming and difficult to justify doing during the busy season, failure to properly verify and document a shortage or damage will result in a claim rejection - should one become necessary - by the freight carrier and by AGCO®.

The freight carriers have instituted these procedures to protect themselves from fraudulent claims. AGCO® has no recourse with a freight carrier to dispute a shipment once a Delivery Receipt has been signed.

As a business, someone in your dealership needs to take the responsibility and the time to verify each shipment when it arrives, and document errors or broken seals on the Delivery Receipt. It's one more way to ensure you get maximum value from your investment in AGCO® Lubricants and Oils.

Product and Part No. Listing - AGCO® Parts Brand

The following products are available to all wholegoods brands and, unless otherwise noted, are available direct-ship or via PDC Stock Order.

MULTI-VISCOSITY MOTOR & ENGINE OIL

Part No.	Description	Type	Container	Pkg. Qty.	Page No.
79015705	AGCO® Powerlube Multiguard®	SAE 5W-30 Motor Oil	1 qt (0.946L)	12	18-19
79015703	AGCO® Powerlube Multiguard®	SAE 5W-30 Motor Oil	2.5 gal (9.46L)	2	18-19
79015702	AGCO® Powerlube Multiguard®	SAE 5W-30 Motor Oil	55 gal (208L)	1	18-19
+79015706	AGCO® Powerlube Multiguard®	SAE 5W-30 Motor Oil	330 gal (1,249L)	1	18-19
841787M1	AGCO® Powerlube Multiguard®	SAE 10W-30 Engine Oil	1 qt (0.946L)	12	20-21
841865M1	AGCO® Powerlube Multiguard®	SAE 10W-30 Engine Oil	1 gal (3.78L)	4	20-21
1079943M2	AGCO® Powerlube Multiguard®	SAE 10W-30 Engine Oil	2.5 gal (9.46L)	2	20-21
79014681	AGCO® Powerlube Multiguard®	SAE 10W-30 Engine Oil	5 gal (18.9L)	1	20-21
79014682	AGCO® Powerlube Multiguard®	SAE 10W-30 Engine Oil	30 gal (113.5L)	1	20-21
79014683	AGCO® Powerlube Multiguard®	SAE 10W-30 Engine Oil	55 gal (208L)	1	20-21
+79016498	AGCO® Powerlube Multiguard®	SAE 10W-30 Engine Oil	110 gal (416L)	1	20-21
+79015673	AGCO® Powerlube Multiguard®	SAE 10W-30 Engine Oil	330 gal (1,249L)	1	20-21
841789M1	AGCO® Powerlube Multiguard®	SAE 15W-40 Engine Oil	1 qt (0.946L)	12	20-21
841866M1	AGCO® Powerlube Multiguard®	SAE 15W-40 Engine Oil	1 gal (3.78L)	4	20-21
841734M2	AGCO® Powerlube Multiguard®	SAE 15W-40 Engine Oil	2.5 gal (9.46L)	2	20-21
841815M2	AGCO® Powerlube Multiguard®	SAE 15W-40 Engine Oil	5 gal (18.9L)	1	20-21
79014676	AGCO® Powerlube Multiguard®	SAE 15W-40 Engine Oil	30 gal (113.5L)	1	20-21
79014677	AGCO® Powerlube Multiguard®	SAE 15W-40 Engine Oil	55 gal (208L)	1	20-21
+79016499	AGCO® Powerlube Multiguard®	SAE 15W-40 Engine Oil	110 gal (416L)	1	20-21
+79015648	AGCO® Powerlube Multiguard®	SAE 15W-40 Engine Oil	330 gal (1,249L)	1	20-21

STRAIGHT-WEIGHT ENGINE OIL

Part No.	Description	Type	Container	Pkg. Qty.	Page No.
841725M2	AGCO® Powerlube Multiguard®	SAE 10W Engine Oil	2.5 gal (9.46L)	2	22-23
841788M1	AGCO® Powerlube Multiguard®	SAE 30 Engine Oil	1 qt (0.946L)	12	22-23
79014695	AGCO® Powerlube Multiguard®	SAE 30 Engine Oil	2.5 gal (9.46L)	2	22-23
79014696	AGCO® Powerlube Multiguard®	SAE 30 Engine Oil	5 gal (18.9L)	1	22-23
79014697	AGCO® Powerlube Multiguard®	SAE 30 Engine Oil	30 gal (113.5L)	1	22-23
79014698	AGCO® Powerlube Multiguard®	SAE 30 Engine Oil	55 gal (208L)	1	22-23
+79016500	AGCO® Powerlube Multiguard®	SAE 30 Engine Oil	110 gal (416L)	1	22-23
+79015649	AGCO® Powerlube Multiguard®	SAE 30 Engine Oil	330 gal (1,249L)	1	22-23
79014700	AGCO® Powerlube Multiguard®	SAE 40 Engine Oil	2.5 gal (9.46L)	2	22-23

TRANSMISSION AND HYDRAULIC LUBRICANTS & OILS

Part No.	Description	Type	Container	Pkg. Qty.	Page No.
841718M2	AGCO® Gearlube 710 / M1103	SAE 90	2.5 gal (9.46L)	2	24
841577M2	AGCO® Gearlube 710 / M1103	SAE 90	55 gal (208L)	1	24
79022402	AGCO® Gearlube 715 / M1134	SAE 80W-90	1 qt (0.946L)	6	25
79014722	AGCO® Gearlube 715 / M1134	SAE 80W-90	2.5 gal (9.46L)	2	25
79014723	AGCO® Gearlube 715 / M1134	SAE 80W-90	55 gal (208L)	1	25
+79016501	AGCO® Gearlube 715 / M1134	SAE 80W-90	110 gal (416L)	1	25
79014724	AGCO® Gearlube 775	SAE 85W-140	2.5 gal (9.46L)	2	26
79022322	AGCO® Gearlube 775	SAE 85W-140	55 gal (208L)	1	26

+ Available direct-ship only on Promo 105

Product and Part No. Listing - AGCO® Parts Brand (Cont'd)

The following products are available to all wholegoods brands and, unless otherwise noted, are available direct-ship or via PDC Stock Order.

TRANSMISSION AND HYDRAULIC LUBRICANTS & OILS (Cont'd)

Part No.	Description	Type	Container	Pkg. Qty.	Page No.
213028	AGCO® Special High-Pressure Worm Gearlube	ISO 220	1 gal (3.78L)	4	27
79018543	AGCO® Hydraulic Oil	AW ISO 32 (Light)	5 gal (18.9L)	1	29
79018544	AGCO® Hydraulic Oil	AW ISO 32 (Light)	55 gal (208L)	1	29
79022604	AGCO® Hydraulic Oil	AW ISO 46 (Medium)	5 gal (18.9)	1	30
79021753	AGCO® Hydraulic Oil	AW ISO 68 (Heavy)	55 gal (208L)	1	31
79022781	AGCO® Hydraulic Oil	AW ISO 100 (Heavy)	5 gal (18.9L)	1	32
79022782	AGCO® Hydraulic Oil	AW ISO 100 (Heavy)	55 gal (208L)	1	32
+79023346	AGCO® Hydraulic Oil	AW ISO 100 (Heavy)	110 gal (416L)	1	32
+79023347	AGCO® Hydraulic Oil	AW ISO 100 (Heavy)	330 gal (1,249L)	1	32
20-7003003	AGCO® Preferred 55® Hydraulic Oil	SAE 5W-20	2.5 gal (9.46L)	2	33
20-7003004	AGCO® Preferred 55® Hydraulic Oil	SAE 5W-20	5 gal (18.9L)	1	33
20-7003005	AGCO® Preferred 55® Hydraulic Oil	SAE 5W-20	55 gal (208L)	1	33
841824M1	AGCO® Permatran® 821XL T&H Oil	SAE 10W-30	1 qt (0.946L)	12	34-35
841867M1	AGCO® Permatran® 821XL T&H Oil	SAE 10W-30	1 gal (3.78L)	4	34-35
841743M1	AGCO® Permatran® 821XL T&H Oil	SAE 10W-30	2.5 gal (9.46L)	2	34-35
841813M1	AGCO® Permatran® 821XL T&H Oil	SAE 10W-30	5 gal (18.9L)	1	34-35
79014714	AGCO® Permatran® 821XL T&H Oil	SAE 10W-30	30 gal (113.5L)	1	34-35
79014715	AGCO® Permatran® 821XL T&H Oil	SAE 10W-30	55 gal (208L)	1	34-35
+79016502	AGCO® Permatran® 821XL T&H Oil	SAE 10W-30	110 gal (416L)	1	34-35
+79015650	AGCO® Permatran® 821XL T&H Oil	SAE 10W-30	330 gal (1,249L)	1	34-35
*PS100508	Massey Ferguson® Low-Temp T&H Oil <i>(This product available to all dealers)</i>	SAE 10W	5 gal (18.9L)	1	56
79014716	AGCO® Powerfluid 411 ATF	SAE 5W-20	1 qt (0.946L)	12	36-37
79014717	AGCO® Powerfluid 411 ATF	SAE 5W-20	2.5 gal (9.46L)	2	36-37
79014718	AGCO® Powerfluid 411 ATF	SAE 5W-20	5 gal (18.9L)	1	36-37
79014720	AGCO® Powerfluid 411 ATF	SAE 5W-20	55 gal (208L)	1	36-37
+79016503	AGCO® Powerfluid 411 ATF	SAE 5W-20	110 gal (416L)	1	36-37
+79015671	AGCO® Powerfluid 411 ATF	SAE 5W-20	330 gal (1,249L)	1	36-37
*79023764	AGCO® Synthetic Transmission Fluid	SAE 50	1 gal (3.78L)	4	38-39

GREASE

Part No.	Description	Thickener Type	Container	Pkg. Qty.	Page No.
79014733	AGCO® HI-TEMP EP-2	Polyurea	14 oz (414ml) tube	10	40
79014732	AGCO® Cornhead EP-O	Polyurea	14 oz (414ml) tube	10	41
79017915	AGCO® Moly EP-2 Lithium II	Lithium II	14 oz (414 ml) tube	50	42
526204	AGCO® Gear Box EP-O	Lithium	3.5 oz (103.5ml) tube	6	43
747003	AGCO® Gear Box EP-O	Lithium	14 oz (414ml) tube	50	43
745212	AGCO® Gear Box EP-O	Lithium	16 oz (473ml) bottle	12	43
*732170	AGCO® Super HI-TEMP	Inorganic	14 oz (414ml) tube	10	44
79014728	AGCO® Multi-Purpose EP-2	Lithium II	14 oz (414ml) tube	50	45
79014726	AGCO® Multi-Purpose EP-2	Lithium II	35 lb (15.87kg) pail	1	45
79014730	AGCO® Heavy-Duty Wheel Bearing	Lithium Complex	16 oz (473ml) tub	12	46

+ Available direct-ship only on Promo 105

* Available from PDC inventory on a Stock Order only

Product and Part No. Listing - AGCO® Parts Brand (Cont'd)

The following products are available to all wholegoods brands and, unless otherwise noted, are available direct-ship or via PDC Stock Order.

ANTIFREEZE & COOLANT

Part No.	Description	Type	Container	Pkg. Qty.	Page No.
79022729	AGCO® Antifreeze & Coolant	US only	1 gal (3.78L)	6	47
79022730	AGCO® Antifreeze & Coolant	CANADA only	1 gal (3.78L)	6	47
79023022	AGCO® Antifreeze & Coolant	US only	55 gal (208L)	1	47
79022731	AGCO® Antifreeze & Coolant	CANADA only	55 gal (208L)	1	47

ADDITIVES *(not pictured in this guide)*

*31-1785700	AGCO® Additive	Cylinder Gearbox	4.5 oz (1.33ml)
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GREASE GUNS

*79004186	Grease Gun	Lever
*1904778M91	Grease Gun	Pistol Grip <i>(pictured)</i>
*79001246	Flex Hose	18" (457mm) long
*79018271	Coupler	----



BARREL PUMP & HOSE *(not pictured in this guide)*

*79022399	Barrel Pump	Fits 30- and 55-gal (114L, 208L) Drums
*79001116	Barrel Pump Hose	8' (244cm) long

OIL SERVICE REMINDER

*79023281	Oil Service Reminder Sticker, Static Cling <i>Service sticker available to all dealers</i>
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100
(pictured below)

** Available from PDC inventory on a Stock Order only*

CONTAINERS PER PALLET		
CONTAINER SIZE	CONTAINERS/ PALLET	
1 Quart (0.946L) Bottle	1,176	
1 Gallon (3.78L) Jug	128	
1 Gallon (3.78L) Bottle Antifreeze	216	
2.5 Gallon (9.46L) Jug	78	
5 Gallon (18.9L) Pail	42	
30 Gallon(113.5L) Drum	5	
55 Gallon (208L) Drum	4	
110 Gallon (416L) Liquid Pack	1	
330 Gallon (1,249L) Liquid Pack	1	



**AGCO
PARTS**

DATE LAST SERVICED
DATE DU DERNIER ENTRETIEN

MILES/HOURS
MILLES/HEURES

PART NO./NO. DE PIÈCE
79023281

Oil Service Sticker

Product and Part No. Listing - Massey Ferguson® Parts Brand

The following products are available to all wholegoods brands and, unless otherwise noted, are available direct-ship or via PDC Stock Order.

MULTI-VISCOSITY MOTOR & ENGINE OIL

Part No.	Description	Type	Container	Pkg. Qty.	Page No.
+841789D1	Massey Ferguson® Multiguard®	SAE 15W-40	1 qt (0.946L)	12	52-53
+841866D1	Massey Ferguson® Multiguard®	SAE 15W-40	1 gal (3.78L)	4	52-53
+841734D1	Massey Ferguson® Multiguard®	SAE 15W-40	2.5 gal (9.46L)	2	52-53
+841815D1	Massey Ferguson® Multiguard®	SAE 15W-40	5 gal (18.9L)	1	52-53

TRANSMISSION & HYDRAULIC OIL

Part No.	Description	Type	Container	Pkg. Qty.	Page No.
+841824D1	Massey Ferguson® Permatran® T&H Oil	SAE 10W-30	1 qt (0.946L)	12	54-55
+841867D1	Massey Ferguson® Permatran® T&H Oil	SAE 10W-30	1 gal (3.78L)	4	54-55
+841743D1	Massey Ferguson® Permatran® T&H Oil	SAE 10W-30	2.5 gal (9.46L)	2	54-55
+841813D1	Massey Ferguson® Permatran® T&H Oil	SAE 10W-30	5 gal (18.9L)	1	54-55
* PS100508	Massey Ferguson® Low-Temp T&H Oil	SAE 10W	5 gal (18.9L)	1	56

This product available to all dealers

GREASE

Part No.	Description	Thickener Type	Container	Pkg. Qty.	Page No.
*3609627M1	Massey Ferguson® 150 EP Gear Lubricant	Synthetic	16 oz (473ml) tube	1	57
1905800M1	Massey Ferguson® HI-TEMP EP-2	Polyurea	14 oz (414ml) tube	10	58
1904953M1	Massey Ferguson® Moly EP-2	Lithium II	14 oz (414ml) tube	50	59
*1905801M1	Massey Ferguson® Super HI-TEMP	Inorganic	14 oz (414ml) tube	10	60
841618M1	Massey Ferguson® Multi-Purpose	Lithium II	14 oz (414ml) tube	10	61
1904864M1	Massey Ferguson® Heavy-Duty Wheel Bearing	Lithium Complex	16 oz (473ml) tub	12	62

OIL SERVICE REMINDER

*79023281 Oil Service Reminder Sticker, Static Cling
Service sticker available to all dealers


100
(pictured below)

+ Available direct-ship only on Promo 105

* Available from PDC inventory on a Stock Order only

CONTAINERS PER PALLET

CONTAINER SIZE	CONTAINERS/ PALLET
1 Quart (0.946L) Bottle	1,176
1 Gallon (3.78L) Jug	128
1 Gallon (3.78L) Bottle Antifreeze	216
2.5 Gallon (9.46L) Jug	78
5 Gallon (18.9L) Pail	42
30 Gallon (113.5L) Drum	5
55 Gallon (208L) Drum	4
110 Gallon (416L) Liquid Pack	1
330 Gallon (1,249L) Liquid Pack	1



**AGCO
PARTS**

DATE LAST SERVICED
DATE DU DERNIER ENTRETIEN

MILES/HOURS
MILLES/HEURES

PART NO./NO. DE PIÈCE
79023281

Product and Part No. Listing - Miscellaneous Brand

The following products are available to all wholegoods brands and, unless otherwise noted, are available direct-ship or via PDC Stock Order.

= Part No.	Description	Type	Container	Pkg. Qty.	Page No.
6665754	Castrol Syntec Full Synthetic Gear Oil	SAE 75W-90	1 qt (0.946L)	6	66
6626830	Mobil 1 Synthetic ATF	ATF	1 qt (0.946L)	6	67
6671040	Texaco Dex-Cool <i>Specified for Spra-Coupe® Models 3430, 3460</i> (Not Available in Canada)	Antifreeze & Coolant	1 gal (3.78L)	6	68
6724354	Sierra <i>Specified for Spra-Coupe® Models 215, 216, 218, 220, 230, 3440, 3460, 4440, 4640</i>	Antifreeze & Coolant	1 gal (3.78L)	6	69
79023384	Polar RV	Antifreeze & Coolant	55 gal (208L)	1	70

OIL SERVICE REMINDER

* 79023281 Oil Service Reminder Sticker, Static Cling
Service sticker available to all dealers

100
(pictured below)

* *Available from PDC inventory on a Stock Order only*

CONTAINERS PER PALLET	
CONTAINER SIZE	CONTAINERS/ PALLET
1 Quart (0.946L) Bottle	1,176
1 Gallon (3.78L) Jug	128
1 Gallon (3.78L) Bottle Antifreeze	216
2.5 Gallon (9.46L) Jug	78
5 Gallon (18.9L) Pail	42
30 Gallon (113.5L) Drum	5
55 Gallon (208L) Drum	4
110 Gallon (416L) Liquid Pack	1
330 Gallon (1,249L) Liquid Pack	1

Printed in USA 10000



**AGCO
PARTS**

DATE LAST SERVICED
DATE DU DERNIER ENTRETIEN

MILES/HOURS
MILLES/HEURES

PART NO./NO. DE PIÈCE
79023281

Oil Service Sticker

NOTES

AGCO® Parts Brand Lubricants and Oils Specifications and Benefits

- Open to all wholegoods brands -



Introducing AGCO® Full Synthetic
Transmission Fluid
Pages 38-39

NOTES

AGCO® Parts Brand Lubricants and Oils

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AGCO® Powerlube Multiguard®

SAE 5W-30 Motor Oil

This fuel-efficient motor oil is designed for easier starts and outstanding performance in today's modern gasoline engines. The superior additive system provides excellent engine durability.

Meets or exceeds all requirements for:

- API Service ILSAC GF-4, SM, SL, SJ, SH, SG for gasoline engines



Features	Benefits
Multi-grade motor oil	All-season usage reduces inventory
API Service SM, SL, SJ, SH, SG ILSAC GF-4	Meets all API requirements for today's gasoline engines
Meets energy conservation requirements	Greater fuel economy equals lower fuel costs
Quality additive system	Minimizes oil thickening and piston deposits for improved engine life, money savings
Exceeds all engine manufacturers' requirements recommending this viscosity grade	Peace of mind knowing your investment is well-protected — fewer headaches for you
Available in a variety of sizes, including a 1-quart (0.946L) bottle, 2.5-gallon (9.46L) jug, 55-gallon (208L) drum and 330-gallon (1,249L) liquid pack.	Sizes for you and your customers

AGCO® Powerlube Multiguard® SAE 5W-30 Motor Oil



AGCO® Powerlube Multiguard® is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.

Specifications

Description	Characteristics
SAE Viscosity Grade	5W-30
API Service Categories	SM, SL, SJ, SH, SG, ILSAC GF-4
API Gravity °	32.65
Flash Point, COC, min	202° C
Viscosity, cP (centipoise) @ -30° C	5,050
MRV-TP1, cP @ -35° C	25,700
HTHS Viscosity, cP	3.07
Viscosity, cSt (centistokes), @ 40° C	64.8
@100° C	10.83
Viscosity, SUS, @ 210° F	62.1
Viscosity Index, min	159
Volatility Noack, %	14.9
Gelation Index	4.6 @ -13° C
Pour Point	-32° F / -36° C
Pounds Per U.S. Gallon	7.18
Total Base Number (TBN)	6.6
Foam, Seq I Tend-Stab, ml	0/0
Foam, Seq II Tend-Stab, ml	10/0
Foam, Seq III Tend-Stab, ml	0/0
Zinc, wt%	0.083
Phosphorus, wt%	0.076
Calcium, wt%	0.206
Sulfur, wt%	0.250
Sulfated Ash, mass%	0.829
Nitrogen, wt%	0.063

AGCO® Powerlube Multiguard® SAE 10W-30, SAE 15W-40 Engine Oil

A super-premium heavy-duty engine oil blended with high-quality Group II base stocks meeting global performance specifications for new cleaner-burning EGR (Exhaust Gas Recirculation) engines. Formulated to give outstanding soot control and improved protection against oxidation. Superior performance for today's high-performance, fuel efficient, low-emission diesel and gasoline engines operating in severe conditions.

Meets or exceeds all requirements for:

- ACEA 02-E2/B3/A2
- Detroit Diesel 7SE 270
- MIL-L-2104E
- Caterpillar ECF-1
- Mack EO-M Plus
- MIL-L-46152D
- Caterpillar TO-2
- MAN 271
- Volvo VDS, VDS-2
- Detroit Diesel Allison C-4
- Mercedes-Benz 228, 229.1
- Meets performance requirements of Cummins CES 20078 and 20076



Features	Benefits
Greatly improved engine durability	<ul style="list-style-type: none"> Improved viscosity control of soot-laden oil Shorter oiling times to critical areas during start up at low temperatures Enhanced bearing protection Longer seal life Meets new EGR engine requirements
Extended drain capacity	<ul style="list-style-type: none"> Greater oxidation stability at higher oil temperatures Reduced oil consumption Improved protection against premature oil filter exhaustion
Advanced additive system	Outstanding engine protection under both pre- and post-2002 EPA exhaust particulate emissions standards in both high- and low-sulphur fuels
SAE 15W-40 exceeds Mack T-10 test	Ring/liner wear, lead corrosion, oil consumption. Merit system.
Exceeds Cummins M-11 EGR test	Sliding valve train wear with high soot, sludge, filter pressure and ring weight loss
Energy conserving	Reduces fuel usage
Meets MIL-L-2104	Military's most comprehensive oil specification
Meets Allison C-4	One product for engine and Allison transmissions
Available in a variety of sizes, including a 1-quart (0.946L) bottle, 1- and 2.5-gallon (3.78L, 9.46L) jugs, 5-gallon (18.9L) pail, 30- and 55-gallon (113.5L, 208L) drums, and 110- and 330-gallon (416L, 1,249L) liquid packs.	Sizes for you and your customers

AGCO® Powerlube Multiguard® SAE 10W-30, SAE 15W-40 Engine Oil

AGCO® Powerlube Multiguard® is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.



Specifications

Description	Characteristics	
SAE Viscosity Grade	10W-30	15W-40
API Service Categories	CI-4, CH-4, CG-4, CF-4, CF, CF-2, SJ, SL	CI-4, CH-4, CG-4, CF-4, CF-2, CF, SJ, SL
API Gravity °	30.04	29.7
Flash Point, COC, min	410° F / 218° C	446° F / 222° C
Flash Point, PMCC, min	392° F / 200° C	396° F / 202° C
Cold Crank Simulator cP (centipoise) HTHS @ 150° C, cP	10,100 @ -25° C 3.47	5,160 @ -20° C 4.22
Volatility, Noack	14.5	12.6
Orbahn Shear, EOT, cSt, (centistokes)	10.39	13.21
Viscosity, cSt, @ 40° C @ 100° C	78.73 11.86	110.38 15.07
Viscosity, SUS, @ 100° F @ 210° F	365 65.9	512 78.2
Viscosity Index, min	145	142
Pour Point	-40° F / -42° C	-40° F / -42° C
Pounds Per U.S. Gallon	7.278	7.309
Total Base Number (TBN)	9.2	9.4
Sulfated Ash, mass%	1.181	1.198
Foam, Seq I Tend-Stab, ml	0/0	0/0
Foam, Seq II Tend-Stab, ml	0/0	0/0
Foam, Seq III Tend-Stab, ml	0/0	0/0

AGCO® Powerlube Multiguard®

SAE 10W, SAE 30, SAE 40

Straight-Weight Engine Oil

Formulated to protect gasoline and diesel engines. Excellent detergent, dispersant, anti-wear and anti-oxidant additives provide superior engine durability.

Meets or exceeds all requirements for:

- Caterpillar Superior Lubricants Series 3
- Caterpillar TO-2 (SAE 10W and SAE 30 only)
- Detroit Diesel Allison C-4 (SAE 10W and SAE 30 only)
- Detroit Diesel 7SE270 (SAE 30 and SAE 40 only)
- MAN 270
- Mercedes-Benz 228.1
- MIL-L-2104E
- MIL-L-46152D
- MTU Type 1



Features	Benefits
SAE 10W grade meets API CF/SH; SAE 30 meets API CE, CF-2/SH; and SAE 40 meets API CF-2/SH	Can be used in both gasoline and diesel fleets. Meets or exceeds requirements for MIL-L-2104E, MIL-L-46152D and Caterpillar Series 3
SAE 10W and SAE 30	Meets Caterpillar TO-2 requirements and Detroit Diesel Allison C-4
Quality additive system	Superior detergent/dispersant package helps reduce piston deposits and extend engine life
TBN retention (high detergency)	Reduces corrosive acids and engine wear while maintaining its ability to neutralize harmful acids
Available in a variety of popular sizes, including a 1-quart (0.946L) bottle (SAE 30), 2.5-gallon (9.46L) jug (SAE 10W, SAE 30, SAE 40), 5-gallon (18.9L) pail (SAE 30), 30- and 55-gallon (113.5L, 208L) drums (SAE 30), and 110- and 330-gallon (416L, 1,249L) liquid packs (SAE 30).	Sizes for you and your customers

AGCO® Powerlube Multiguard®

SAE 10W, SAE 30, SAE 40

Straight-Weight Engine Oil

AGCO® Powerlube Multiguard® is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.



Specifications

Description	Characteristics		
SAE Viscosity Grade	10W	30	40
API Service Category	CF	CF-2, CF, SJ	CF-2, CF, SJ
API Gravity °	30.4	29.66	28.7
Flash Point, COC, min	410° F / 216° C	457° F / 236° C	468° F / 226° C
Flash Point, PMCC	387° F / 197° C	396° F / 202° C	390° F / 199° C
Viscosity, cP @ -30° C (centipoise)	14,000	----	----
Viscosity, cP @ -25° C	3,700	----	----
Viscosity, cP @ -20° C	1,780	----	----
Viscosity, cP @ -15° C	----	----	----
Viscosity, cP @ -10° C	----	----	----
HTHS, cP @ 150° C	2.79	3.62	4.45
Viscosity, cSt @ 40° C (centistokes)	54.11	93.75	150.08
	8.27	11.79	16.02
Viscosity, SUS @ 100° F	251	434	695
	53.3	65.6	82
Viscosity Index, min	120	117	106
Pour Point	-39° F / -39° C	-36° F / -36° C	-17° F / -27° C
Pounds Per U.S. Gallon	7.278	7.271	7.360
Total Base Number MG KOH/G	9.2	7.8	7.8
Sulfated Ash, mass%	1.181	0.999	0.999
Foam, Seq 1 Tend-Stab, ml	0/0	0/0	0/0
Foam, Seq 2 Tend-Stab, ml	0/0	0/0	0/0
Foam, Seq 3 Tend-Stab, ml	0/0	0/0	0/0

AGCO® Gearlube 710 M1103 Transmission Oil SAE 90

Single-grade straight mineral oil gear lubricant that is designed for manual transmissions and various other gearboxes with straight-cut gears. This economical gear oil offers excellent lubricity and flow characteristics, making it suitable for cold-weather service.

- Use where API Service designation GL-1 is recommended.
- Not recommended for extreme pressure or hypoid gear applications.

AGCO® Gearlube 710 M1103 Transmission Oil SAE 90 is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.



Features	Benefits
SAE 90 and M1103	Excellent lubricity and flow characteristics; suitable for cold-weather service
API Service GL-1	Use where GL-1 recommended. Not recommended for extreme pressure or hypoid gear applications.
Available in a 2.5-gallon (9.46L) jug and 55-gallon (208L) drum.	Sizes for you and your customers

Specifications

Description	Characteristics
SAE Viscosity Grade	90
API Service Categories	SA, GL-1
API Gravity °	28.95
Flash Point, COC, min	450° F / 232° C
Viscosity, cSt (centistokes), @ 40° C	159.7
@ 100° C	16.01
Viscosity, SUS @ 210° F	81.9
Viscosity Index (ASTM D-2270), min	104
Pour Point	10° F / -12° C
Pounds Per U.S. Gallon	7.346

AGCO® Gearlube

Gear/Axle Oil 715 M1134

SAE 80W-90

Designed to meet the demands of heavy-duty axles and manual transmissions. Meets or exceeds the requirements of many gear, transmission and automobile manufacturers. Suited for use in passenger cars as well as heavy-duty equipment for both on- and off-highway applications. Recommended for limited slip, conventional differentials with hypoid, spiral, beveled gears; manual transmissions; manual steering gears; universal joints; and all other units for which a multi-purpose gear lubricant is recommended.

Meets or exceeds all requirements for:

- Eaton Axle
- Ford M2C83-C, M2C108C, M2C154A
- Mack G0-J, GO-H
- Rockwell International 0-76-D, 0-78-D
- SAE J2360 (MIL-L-2105E, 2105D)



AGCO® Gearlube Gear/Axle Oil is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.

Features	Benefits
SAE 80W-90 and M1134 (ISO Viscosity Grade 150)	Low temperature pump-ability and fuel economy
Meets Eaton axle requirements	Can be used in Eaton axles
API Service GL-5, MT-1	Recommended for hypoid gear applications
MIL-L-2105E, MIL-L-2105D (80W-90) (M1134)	Excellent thermal stability of EP additive system
Available in a 1-quart (0.946L) bottle, 2.5-gallon (9.46L) jug, 55-gallon (208L) drum and 110-gallon (416L) liquid pack.	Sizes for you and your customers

Specifications

Description	Characteristics
SAE Viscosity Grade	80W-90
API Service Categories	GL-5, MT-1
API Gravity °	31.3
Flash Point, COC, min	420° F / 216° C
Viscosity, cP (centipoise)	138,000 @ -26° C
Viscosity, cSt (centistokes), @ 40° C	145.1
@ 100° C	15.76
Viscosity Index (ASTM D-2270), min	113
Pour Point	-22° F / -30° C
Channel Pass, C(F) 3456	Pass
Pounds Per U.S. Gallon	7.238
Foam, Seq 1 Tend-Stab, ml	0/0
Foam, Seq 2 Tend-Stab, ml	0/0
Foam, Seq 3 Tend-Stab, ml	0/0

AGCO® Gearlube

Gear/Axle Oil 775

SAE 85W-140

Meets or exceeds the requirements of many gear, transmission and automobile manufacturers. Suited for use in passenger cars, and heavy-duty equipment for both on- and off-highway applications. Recommended for limited slip, conventional differentials with hypoid, spiral, beveled gears; manual transmissions; manual steering gears; universal joints; and all other units for which a multi-purpose gear lubricant is recommended.

Meets or exceeds all requirements for:

- API GL-5, MT-1
- Eaton Axle
- Mack G0-J, GO-H
- Rockwell International 0-76-A
- SAE J2360 (MIL-L-2105E, 2105D)

AGCO® Gearlube Gear/Axle Oil is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.



Features	Benefits
SAE 85W-140 (ISO Viscosity Grade 320/460)	Provides superior protection in a wide temperature range
Meets Eaton axle requirements	Can be used in Eaton axles
API Service GL-5, MT-1	Recommended for hypoid gear applications
MIL-L-2105E, MIL-L-2105D (SAE 85W-140)	Excellent thermal stability of EP (Extreme Pressure) additive system
Mack GO-J (SAE 85W-140)	Exceeds Mack specification for transmissions and heavy-duty axles
Available in 2.5-gallon (9.46L) jug and 55-gallon (208L) drum.	Sizes for you and your customers

Specifications

Description	Characteristics
SAE Viscosity Grade	85W-140
API Service Categories	GL-5, MT-1
API Gravity °	26.37
Flash Point, COC, min	453° F / 234° C
Viscosity, cP (centipoise)	70,000 @ -12° C
Viscosity, cSt (centistokes), @ 40° C	330.1
@ 100° C	25
Viscosity Index (ASTM D-2270), min	98
Pour Point	5° F / -15° C
Channel Pass, C(F)	Pass
Pounds Per U.S. Gallon	7.467
Foam, Seq 1 Tend-Stab, ml	0/0
Foam, Seq 2 Tend-Stab, ml	0/0
Foam, Seq 3 Tend-Stab, ml	0/0

AGCO® Special High-Pressure Worm Gear Lubricant

Prevents gearbox overheating and component wear. This economical gear oil offers excellent lubricity and flow characteristics, making it suitable for cold-weather service.

- Not recommended for extreme pressure or hypoid gear applications.

AGCO® Special High-Pressure Worm Gear Lubricant is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.



Features	Benefits
ISO Viscosity Grade 220	Excellent lubricity and flow characteristics; suitable for cold-weather service
Available in a 1-gallon (3.78L) jug.	Sized for you and your customers

Specifications

Description	Characteristics
ISO Viscosity Grade	220
Automotive Gear Manufacturers Association (AGMA) Grade	5 EP
Flash Point, COC	435° F / 224° C
Viscosity, cSt (centistokes), @ 40° C	177.7
@ 100° C	17.27
Viscosity Index (min)	104
Channel Point	0° F / -18° C
Timken EP Test, lb, pass	60
FZG Test, Stages, pass	12
Corrosion, Cu	1
Foam Test, ml	0/0
Emulsion Test, minutes	25

AGCO® Hydraulic Oils

Anti-Wear

ISO 32, ISO 46, ISO 68, ISO 100

AGCO® Anti-Wear Hydraulic Oils are formulated to protect against wear, rust and oxidation and are available in a variety of viscosity grades use in every temperature.

Anti-Wear ISO Viscosity Grades 32, 46 and 68 are general-purpose formulas that are recommended for most farm equipment hydraulic systems and general industrial applications.

Anti-Wear ISO Viscosity Grade 100 is a premium quality formula intended for high-speed, high-pressure vane and gear pump, and axial piston pump applications.

Meet or exceed the following OEM pump specifications:

- AFNOR E 48-603
- B.F. Goodrich 0152
- Cincinnati Milacron P-68, P-69, P-70
- Denison HF-1, HF-2, HF0
- DIN 51524, Part 2
- Ford M-6C32
- General Motors LH-04-1, LH-06-1, LH-15
- Jeffrey No. 87
- Lee-Norse 100-1
- Racine variable volume vane pumps
- U.S. Steel 136, 127
- Vickers 1-286-S, M-2950-S

AGCO® Hydraulic Oils are recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual for the correct ISO viscosity grade.



AGCO® Anti-Wear ISO 32 (pictured), ISO 46 and ISO 68 Hydraulic Oils are recommended for most farm equipment hydraulic systems.



AGCO® Anti-Wear ISO 100 Hydraulic Oil is a premium formula particularly formulated for high-speed, high-pressure pump applications.

AGCO® Hydraulic Oil

AW ISO 32 (Light)

AGCO® Anti-Wear Hydraulic Oil (Light) is a general-purpose formula intended for use in cool and cold temperatures. It is recommended for most farm equipment hydraulic systems* and general industrial applications.

Consult your Operators Manual for the correct ISO viscosity grade.

*AW32 is not a replacement for AGCO® Permatran® 821XL or Massey Ferguson® Permatran® T&H Oil.



Features	Benefits
ISO Viscosity Grade 32	Light formulation designed for cool and cold temperatures
Anti-wear formulation	Protects hydraulic systems against wear, rust and oxidation
Meets or exceeds OEM pump specifications for the following: AFNOR E 48-603; B.F. Goodrich 0152; Cincinnati Milacron P-68, P-69, P-70; Denison HF-1, HF-2, HF0; DIN 51524, Part 2; Ford M-6C32; General Motors LH-04-1, LH-06-1, LH-15; Jeffrey No. 87; Lee-Norse 100-1; Racine variable volume vane pumps; U.S. Steel 136, 127; and Vickers 1-286-S, M-2950-S	Helps maintain OEM pump performance
Available in 5-gallon (18.9L) pail and 55-gallon (208L) drum	Sizes for you and your customers

Specifications

Property	Test Methods	Limits	Typical
**API Gravity °	ASTM D-287	23.5 - 25.5	33.32
**Viscosity @ 100° C, cSt	ASTM D-445	5.1 - 5.6	5.75
**Viscosity @ 40° C, cSt	ASTM D-445	28.8 - 34.3	32.69
**Viscosity Index, min	ASTM D-2270	----	118
**Pour Point	ASTM D-97	----	-36° C
Flash Point, COC, min	ASTM D-92	215° C	----
**ASTM Color	ASTM D-1500	----	0.5
**Zinc, wt%	ASTM D-4951	0.029 - 0.044	0.037
Phosphorus, wt%	ASTM D-4951	0.023 - 0.035	0.029
Sulfur, wt%	ASTM D-2622	0.046 - 0.071	0.058
Calcium, wt%	ASTM D-4591	0.005 - 0.007	0.006
Oxidation Hours	ASTM D-943	NA	> 6,000 hours

**Tests performed

AGCO® Hydraulic Oil

AW ISO 46 (Medium)

AGCO® Anti-Wear Hydraulic Oil (Medium) is a general-purpose formula intended for use in cool and cold temperatures. It is recommended for most farm equipment hydraulic systems* and general industrial applications.

Consult your Operators Manual for the correct ISO viscosity grade.

*AW46 is not a replacement for AGCO® Permatran® 821XL or Massey Ferguson® Permatran® T&H Oil.



Features	Benefits
ISO Viscosity Grade 46	Medium formulation designed for cool and cold temperatures
Anti-wear formulation	Protects hydraulic systems against wear, rust and oxidation
Meets or exceeds OEM pump specifications for the following: AFNOR E 48-603; B.F. Goodrich 0152; Cincinnati Milacron P-68, P-69, P-70; Denison HF-1, HF-2, HF0; DIN 51524, Part 2; Ford M-6C32; General Motors LH-04-1, LH-06-1, LH-15; Jeffrey No. 87; Lee-Norse 100-1; Racine variable volume vane pumps; U.S. Steel 136, 127; and Vickers 1-286-S, M-2950-S	Helps maintain OEM pump performance
Available in a 5-gallon (18.9L) pail.	A size for you and your customers

Specifications

Property	Test Methods	Limits	Typical
**API Gravity °	ASTM D-287	23.5 - 25.5	32.27
**Viscosity @ 100° C, cSt	ASTM D-445	5.1 - 5.6	7.12
**Viscosity @ 40° C, cSt	ASTM D-445	28.8 - 34.3	45.57
**Viscosity Index, min	ASTM D-2270	----	116
**Pour Point	ASTM D-97	----	-36° C
Flash Point, COC, min	ASTM D-92	215° C	----
**ASTM Color	ASTM D-1500	----	1
**Zinc, wt%	ASTM D-4951	0.029 - 0.044	0.037
Phosphorus, wt%	ASTM D-4951	0.023 - 0.035	0.029
Sulfur, wt%	ASTM D-2622	0.046 - 0.071	0.058
Calcium, wt%	ASTM D-4591	0.005 - 0.007	0.006
Oxidation Hours	ASTM D-943	NA	> 6,000 hours

**Tests performed

AGCO[®] Hydraulic Oil

AW ISO 68 (Heavy)

AGCO[®] Anti-Wear Hydraulic Oil (Heavy) is a general-purpose formula intended for use in warm and hot temperatures. It is recommended for most farm equipment hydraulic systems and general industrial applications.

Consult your Operators Manual for the correct ISO viscosity grade.

Features	Benefits
ISO Viscosity Grade 68	Heavy formulation designed for warm and hot temperatures
Anti-wear formulation	Protects hydraulic systems against wear, rust and oxidation
Meets or exceeds OEM pump specifications for the following: AFNOR E 48-603; B.F. Goodrich 0152; Cincinnati Milacron P-68, P-69, P-70; Denison HF-1, HF-2, HF0; DIN 51524, Part 2; Ford M-6C32; General Motors LH-04-1, LH-06-1, LH-15; Jeffrey No. 87; Lee-Norse 100-1; Racine variable volume vane pumps; U.S. Steel 136, 127; and Vickers 1-286-S, M-2950-S	Helps maintain OEM pump performance
Available in 55-gallon (208L) drum	Sized for you

Specifications

Property	Test Methods	Limits	Typical
*API Gravity °	ASTM D-287	23.5 - 25.5	31.4
*Viscosity @ 100° C, cSt	ASTM D-445	8.1 - 9.0	9.28
*Viscosity @ 40° C, cSt	ASTM D-445	61.2 - 74.8	69.13
*Viscosity Index, min	ASTM D-2270	----	111
*Pour Point	ASTM D-97	----	-36° C
Flash Point, COC, min	ASTM D-92	215° C	----
*ASTM Color	ASTM D-1500	----	1.5
*Zinc, wt%	ASTM D-4951	0.029 - 0.044	0.037
Phosphorus, wt%	ASTM D-4951	0.023 - 0.035	0.029
Sulfur, wt%	ASTM D-2622	0.046 - 0.071	0.058
Calcium, wt%	ASTM D-4591	0.005 - 0.007	0.006
Oxidation Hours	ASTM D-943	NA	> 6,000 hours

*Tests performed

AGCO® Hydraulic Oil

AW ISO 100 (Heavy)

AGCO® Anti-Wear Hydraulic Oil (Heavy) is a premium quality, low-zinc hydraulic oil. It has excellent stability and a balanced additive system that provides oxidation and thermal stability, demulsibility, along with anti-rust, anti-wear and anti-foam characteristics. Anti-wear agents used in AGCO® hydraulic oil help minimize wear in high-speed, high-pressure vane and gear pumps while meeting the requirements of axial piston pumps.

This oil is recommended for use on Ag-Chem® RoGator® applicator models 663, 664, 844, 864, 1054, 1064, 1254, 1254C, 1264 and 1264C, as well as other AGCO® equipment brands and models, and other general industrial equipment requiring an anti-wear hydraulic oil.



Features	Benefits
ISO Viscosity Grade 100	Heavy formulation for use at higher temperatures
Premium anti-wear formulation: low zinc, stable, balanced additive system	Protects hydraulic systems against wear, rust and oxidation, particularly in high-speed, high-pressure vane and gear pumps, as well as axial piston pumps
Recommended for Ag-Chem® RoGator® Applicators	Peace of mind for custom applicators who need to know systems are in top condition
Meets or exceeds OEM pump specifications for the following: AFNOR E 48-603; B.F. Goodrich 0152; Cincinnati Milacron P-68, P-69, P-70; Denison HF-1, HF-2, HF0; DIN 51524, Part 2; Ford M-6C32; General Motors LH-04-1, LH-06-1, LH-15; Jeffrey No. 87; Lee-Norse 100-1; Racine variable volume vane pumps; U.S. Steel 136, 127; and Vickers 1-286-S, M-2950-S	Helps maintain OEM pump performance
Available in a 5-gallon (18.9L) pail, 55-gallon (208L) drum, as well as 110- and 330-gallon (416L, 1,249L) liquid packs.	Sizes for you and your customers

Specifications

Property	Test Methods	Limits	Typical
*API Gravity °	ASTM D-287	23.5 - 25.5	30.32
*Viscosity @ 100° C, cSt	ASTM D-445	8.1 - 9.0	11.54
*Viscosity @ 40° C, cSt	ASTM D-445	61.2 - 74.8	96.96
*Viscosity Index, min	ASTM D-2270	----	107
*Pour Point	ASTM D-97	----	-36° C
Flash Point, COC, min	ASTM D-92	215° C	----
*ASTM Color	ASTM D-1500	----	2
*Zinc, wt%	ASTM D-4951	0.029 - 0.044	0.037
Phosphorus, wt%	ASTM D-4951	0.023 - 0.035	0.029
Sulfur, wt%	ASTM D-2622	0.046 - 0.071	0.058
Calcium, wt%	ASTM D-4591	0.005 - 0.007	0.006
Oxidation Hours	ASTM D-943	NA	> 6,000 hours

*Tests performed

AGCO® Preferred 55® Hydraulic Oil

AGCO® Preferred 55® Hydraulic Oil is a replacement fluid for White™ UHTF and Oliver® Type 55 fluids.



Features	Benefits
SAE 5W-20	Provides excellent low-temperature performance
Replacement fluid for White™ and Oliver® equipment applications	Meets specification requirements
Available in a 2.5-gallon (9.46L) jug, 5-gallon (18.9L) pail, and 55-gallon (208L) drum.	Sizes for you and your customers

Specifications

Description	Characteristics
SAE Viscosity Grade	5W-20
ISO Viscosity Grade	32/46
API Gravity °	32.0
Flash Point, COC, min	367° F / 186° C
Viscosity, cP (centipoise), @ -40° C	45,000
Viscosity, cSt (centistokes), @ 40° C	32.8
@ 100° C	7.00
Viscosity Index, min	177
Pour Point	-54° F / -48° C
Pounds Per U.S. Gallon	7.21
Foam, Seq 1 Tend-Stab, ml	0/0
Foam, Seq 2 Tend-Stab, ml	10/0
Foam, Seq 3 Tend-Stab, ml	0/0

AGCO® Permatran® 821XL

T&H Oil SAE 10W-30

AGCO® Permatran® 821XL Transmission & Hydraulic Oil is specially formulated with the finest quality, hydrotreated, high-viscosity index, paraffinic base oils and the most advanced and rigorously-tested additive system to deliver 'above and beyond' protection and performance. Group II base stocks provide the added benefits of improved thermal and oxidation performance and low temperature properties.

Meets or exceeds oil requirements for:

AGCO: AGCO® Permatran® 821XL

Allis-Chalmers 626371, Powerfluid 821XL

Massey Ferguson® Permatran® M-1143, M-1141, M-1135,

M-1129A, M-1127A/B, M-1110, M-2235

White Farm Equipment® UHTF, Oliver® Type 55 fluids,

Q-1826, Q-1766, Q-1722, Q-1766B

ABEX/Dennison: Hydraulic Fluid HF-0 (all pumps), HF-2, HF-1

CNH: Case IH Hy-Tran Plus, Hy-Tran Ultra, 1208, MS-1209,

MS-1210 (TCH Fluid), MS-1230

Ford New Holland M2C134 A/B/C/D, M2C86 A/B,

M2C53 A/B, M2C41 A/B

Hesston® Fiat Oilofiat Tutela Multi-F, AF-87

International Harvester Hy-Tran B6J Case TFD Fluid (MS-1024, JIC-185), TFDII Fluid

(MS-1205, JIC-145), Powergard PTF Fluid (MS-1206, MS-1210)

Poclain Equipment for High Pressure

Steiger HTF SEMS 17001

Versatile Gear and Hydraulic Transmission Fluid ESN-M2C134D

Caterpillar: TO-2, MTO

Clark: Lift Truck Transmission Fluid TA12, TA18, HR 500, HR 600

Deutz: Hydraulic Transmission Fluid

Grove Manufacturing: Hydraulic Fluid

John Deere: Hy-Gard, J-20C (J-20A), J-14B/C, Hydrostatic Fluid (J-21A), Type 303 Fluid

Komatsu Dresser: Transmission/Hydraulic Fluid

Kubota: UDT Hydraulic Fluid, Universal Transdraulic Fluid

Renk: Bus ATF

Sauer-Danfoss (Sundstrand): Hydrostatic Transmission Fluid

Sperry Vickers: M-2950-S Mobil Hydraulics, I-286-S Industrial Hydraulics

ZF: TE-ML-03E (Torque Converter Transmission Off-Highway and Industrial)

TE-ML-05F (Off-Road Axles, exception of hypoid gears)



Features	Benefits
SAE 10W-30	Suitable for year-round use
API Service GL-4	Mild Extreme Pressure (EP) system allows use in farm tractors or farm equipment that requires one lubricant for transmission, final drives and hydraulic systems.
Meets requirements of major OEM manufacturers	Universal lubricant for most tractors. Simplifies product inventory: one product for most transmission, hydraulic, axle and final drive systems.
Available in 1-quart (0.946L) bottle, 1- and 2.5-gallon (3.78L, 9.46L) jugs, 5-gallon (18.9L) pail, 30- and 55-gallon (113.5L, 208L) drums, and 110- and 330-gallon (416L, 1,249L) liquid packs	Sizes for you and your customers

AGCO® Permatran® 821XL T&H Oil SAE 10W-30

AGCO® Permatran® 821XL T&H Oil is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.



Specifications

Description	Characteristics
SAE Viscosity Grade	10W-30
API Service Category	GL-4
API Gravity °	28.5
Flash Point, COC, min	207° F / 224° C
Viscosity, cSt (centistokes), @ 40° C	57.6
@ 100° C	9.23
Brookfield Viscosity, cP (centipoise), @ -35° C	32,593
@ -20° C	3,960
Viscosity Index, min	141
Pour Point	-30° F / -33° C
Pour Cycle, 203	-44° F / -42° C
Pounds Per U.S. Gallon	7.3
Foam, Seq 1 Tend-Stab, ml	TR-0
Foam, Seq 2 Tend-Stab, ml	10-0
Foam, Seq 3 Tend-Stab, ml	TR-0
Foam, Break Time, SEC	10
Foam, Seq 1 T-S + 0.5% H2O	TR-0
Foam, Seq 2 T-S + 0.5% H2O	10-0
Foam, Seq 3 T-S + 0.5% H2O	TR-0

AGCO® Powerfluid 411

Automatic Transmission Fluid

(ATF) SAE 5W-20

Recommended for use in transmissions where Dexron III, Dexron IID, Dexron IIE, Dexron, Ford Mercon, Ford M2C166-H or Ford M2C138CJ fluids are required. Meets General Motors “H” specification. Also may be used in Mercedes-Benz, Chrysler, Toyota, Nissan, Honda, VW, Mazda and other domestic and import vehicles requiring Dexron III.

Always consult your Operators Manual for the required Automatic Transmission Fluid.



Features	Benefits
SAE 5W-20	Provides excellent low-temperature performance
Quality additive system	Minimizes wear under all operating temperatures and assures smooth, quiet shifting. Controls sludge formation and varnish and resists oxidation, saving you money.
Approved for General Motors Dexron specifications including new “H” specification	Can be used in all General Motors automatic transmissions that require Dexron
Approved for Ford Mercon M2C138CJ and M2C166H	Can be used in all Ford automatic transmissions that require Mercon
Meets manufacturer’s requirements for Allison C-4 and Caterpillar TO-2 engines	Peace of mind knowing your investment is protected - fewer headaches for you.
Available in a variety of sizes, including a 1-quart (0.946L) bottle, 2.5-gallon (9.46L) jug, 5-gallon (18.9L) pail, 55-gallon (208L) drum, and 110- and 330-gallon (416L, 1,249L) liquid packs.	Sizes for you and your customers

AGCO® Powerfluid 411 Automatic Transmission Fluid (ATF) SAE 5W-20



Specifications

Description	Characteristics
SAE Viscosity Grade	5W-20
API Gravity °	32.23
Flash Point, COC, min	407° F / 180° C
Flash Point, PMCC	174° C
Fire Point, COC	428° F / 220° C
Viscosity, cP @ -40° C	16,680
Viscosity, cP @ -30° C	4,480
Viscosity, cP @ -20° C	1,360
Viscosity, cSt (centistokes), @ 40° C	34.93
@ 100° C	7.15
Viscosity Index, min	174
Pour Point	-54° F / -48° C
Pounds Per U.S. Gallon	7.042
Foam, Seq 1 Tend-Stab, ml	0/0
Foam, Seq 2 Tend-Stab, ml	20/0
Foam, Seq 3 Tend-Stab, ml	0/0

AGCO® Synthetic Transmission Fluid SAE 50

AGCO® Synthetic Transmission Fluid SAE 50 is specifically designed to optimize the performance of modern off-highway transmissions and gear sets. Manufactured from polyalphaolefin base oils, this is the highest quality product available capable of handling extreme heat and oxidation, providing maximum heat stability. This is a Group IV full synthetic product.

AGCO® Synthetic Transmission Fluid SAE 50 is specifically recommended for use in the reaction arm bearings (drive wheel hubs), mid-roller wheel hubs and idler wheel hubs of Challenger® MT700, MT700B, MT800 and MT800B Series tractors.



Meets or exceeds all requirements for Caterpillar TO-4 and Allison C-4 transmission requirements

Features	Benefits
Frictional stability	Sustained frictional performance over time enhances fluid durability, assisting in easier maintenance.
Balanced frictional response	In the Caterpillar TO-4 friction test, it is essential to meet wear and frictional requirements of the metallic and non-metallic friction materials specified. This product ensures friction material life, assists in preventing costly field failures.
Anti-wear protection	Provides balanced anti-wear and frictional properties ensuring protection of gear sets, highly loaded final drive gears and bearings in off-highway vehicles, while maintaining the necessary friction characteristics
Full materials compatibility	Compatibility with elastomers used in rings and seals helps prevent leaks. This product is non-corrosive to metals.
Superior oxidation stability	High-quality synthetic base stocks provide maximum oxidation protection, ensuring the fluid will not degrade in high temperatures. Contains a sludge control component to prevent blockage of lubricating passages, offering longer drain intervals and extended equipment life.
Maximum foam protection	Special anti-foam additives ensure no fluid loss due to foaming, even with water contamination. Less risk of wear through metal-to-metal contact.
Low-temperature fluidity	This fluid is formulated as a straight-grade SAE 50 for high ambient temperature and severe operating conditions, yet offers low-temperature fluidity to ensure easier cold weather flow and less wear
Sustained film thickness	Formulated to help enhance film thickness. Sustained film thickness provides gear protection and anti-wear throughout the equipment life.
Available in a 1-gallon (3.78 L) jug.	Sized for you and your customers

AGCO® Synthetic Transmission Fluid SAE 50



AGCO® Synthetic Transmission Fluid SAE 50 is specifically recommended for use in the reaction arm bearings (drive wheel hubs), mid-roller wheel hubs and idler wheel hubs of Challenger® MT700, MT700B, MT800 and MT800B Series tractors.

Specifications

Description / Property	Test Method	Characteristics
SAE Viscosity Grade	----	50
Specific Gravity, 60° F	ASTM D-4052-96	0.8515
API Gravity °	ASTM D-287	34.68
Viscosity, cSt (centistokes), @ 40° C @100° C	ASTM D-445	123.60
	ASTM D-445	17.69
Viscosity Index, min	ASTM D-2270	159
ASTM Color	ASTM D-1500	2.5
FTIR Spectrum Match	----	99.5 low/100 high
Pour Point	ASTM D-97	-54° C
Zinc, wt%	----	0.1289
Phosphorus, wt%	----	0.1158
Calcium, wt%	----	0.3227
Sulfur, wt%	----	0.4122
Sulfated Ash, mass%	----	1.2892

AGCO® HI-TEMP

Grease EP-2 (Extreme Pressure)

AGCO® HI-TEMP Grease is an Extreme Pressure non-soap-thickened polyurea lubricating grease formulated with high quality raw materials. It is also fortified with rust and oxidation inhibitors and extreme-pressure additives. AGCO® HI-TEMP offers a dropping point of more than 500° F / 260° C. It performs well in areas where water washout is a major concern.

The chemical and physical properties of AGCO® HI-TEMP grease make it superb as an all-purpose lubricating grease.

AGCO® HI-TEMP Grease is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.



Features	Benefits
NLGI Grade 2	Moderately soft - National Lubricating Grease Institute Grade 2 - means this is ideal as an all-purpose lubricating grease
High dropping point: >500° F / 260° C	AGCO® HI-TEMP EP-2 Grease is designed to withstand high temperatures without breaking down. (The dropping - or melting - point is that at which the thickener begins to soften and release the base oil.)
Available in a 14-ounce (414ml) tube.	Sized for you and your customers

Specifications

Description	Characteristics
NLGI Grade	2
Thickener Type	Polyurea
Texture	Smooth
Color	Blue
Worked Penetration, ASTM D-217, 77° F / 25° C, 60 strokes	265 - 295
Dropping Point, ASTM D-2265, min	500° F / 260° C
Water Washout, ASTM D-1264, % loss, max	10
Rust Prevention, ASTM D-1743	Pass
Copper Corrosion, ASTM D-4048, Rating	1b
Oxidation Stability, ASTM D-942, PSI loss, max	5
Oil Separation, ASTM D-1742, % loss, max	5
Four-Ball EP, Weld Point, ASTM D-2596, min	400
Load Wear Index, ASTM D-2596, kgf	50
Four-Ball Wear Scar, mm	0.51
Timken OK Load, ASTM D-2509, lb	60
Base Oil Characteristics - Viscosity	
@ 40° C, cSt (centistokes)	135 -155
@ 100° C, cSt	13.5 -15.5
@ 100° F, SUS	625 - 725
@ 210° F, SUS	60 - 70
Viscosity Index, min	70

AGCO® Cornhead EP-0 (Extreme Pressure) Grease

AGCO® Cornhead Grease is a non-soap polyurea lubricating grease formulated with high-quality raw materials. It is fortified with rust and oxidation inhibitors as well as extreme pressure additives.

- AGCO® Cornhead Grease meets John Deere material specification JDM J13E6.

AGCO® Cornhead Grease is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.



Features	Benefits
NLGI Grade 0	This very soft National Lubricating Grease Institute rating means AGCO® Cornhead Grease works well in the low-speed, enclosed atmosphere of a cornhead.
High dropping point: 460° F / 238° C	AGCO® Cornhead Grease is designed to withstand high temperatures without breaking down. (The dropping - or melting - point is that at which the thickener begins to soften and release the base oil.)
Available in a 14-ounce (414ml) tube.	Sized for you and your customers

Specifications

Description	Characteristics
NLGI Grade	0
Type Thickener	Polyurea
Texture	Smooth
Color	Blue Green
Worked Penetration, ASTM D-217, 77° F / 25° C	355 - 385
Dropping Point, ASTM D-2265, min	460° F / 238° C
Oxidation Stability @ 210° F, ASTM D-942, 100 hr	10 (max)
Mineral Oil Viscosity @ 210° F, SUS, ASTM D-445	70 - 90
@ 100° F, SUS, ASTM D-445	800 - 950
Viscosity Index, min	95
Pour Point	+10° F
Rust Test, ASTM D-1743	1,1,1

AGCO® Moly EP-2 (Extreme Pressure) Lithium II Grease

AGCO® Moly Extreme-Pressure (EP-2) Grease is a high-quality, multi-purpose Lithium II grease, designed for lubricating heavy-duty automotive and industrial equipment, where heavy loads and wet conditions require high film strength and resistance to water washing.

Formulated with the highest quality base oils available, AGCO® Moly EP-2 Grease is fortified with rust and oxidation inhibitors as well as extreme pressure additives. In addition, it is fortified with Molybdenum Disulfide to protect against seizure under high loads and severe shock load conditions. AGCO® Moly EP-2 grease retains its lubricating ability over long periods of heavy use, and will not harden in bearings.

AGCO® Moly EP-2 Grease is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.



Features	Benefits
NLGI Grade 2	Moderately soft - National Lubricating Grease Institute Grade 2 - means this is ideal as an all-purpose lubricating grease
Moderately high dropping point: 350° F / 177° C	AGCO® MOLY EP Grease is designed to withstand high temperatures without breaking down over long periods of time. (The dropping - or melting - point is that at which the thickener begins to soften and release the base oil.)
Available in a 14-ounce (414ml) tube.	Sized for you and your customers

Specifications

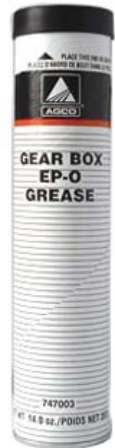
Description	Characteristics
NLGI Grade	2
Thickener Type	Lithium II
Thickener %	7 - 8
Texture	Smooth
Color	Gray
Worked Penetration, ASTM D-217, 77° F / 25° C	265 - 295
Dropping Point, ASTM D-2265, min	350° F / 177° C
Wheel Bearing Leakage, ASTM D-4290, gm loss	5
Water Washout, ASTM D-1264, % loss max	10
Rust Prevention, ASTM D-1743, Rating	1,1,1
Copper Corrosion, ASTM D-4048, Rating	1b
Oxidation Stability, ASTM D-942, PSI Drop	5
Oil Separation, ASTM D-1742, % loss	10
Four Ball Wear, ASTM D-2266, mm Scar, dia	0.40 - 0.50
Four Ball EP Weld Point, ASTM D-2596, min	250
Four Ball Load Wear Index, ASTM D-2596, kgf	40
Timken OK Load, ASTM D-2509, lb	45
Base Oil Characteristics - Viscosity	
@ 40° C, cSt (centistokes)	132 -152
@ 100° C, cSt	11.00 - 13.40
@ 100° F, SUS	700 - 800
@ 210° F, SUS	65 - 70
Viscosity Index, min	50

AGCO® Gear Box EP-0 (Extreme Pressure) Grease

AGCO® Gear Box Extreme-Pressure EP-0 Grease is a lithium 12 hydroxy lubricating grease formulated with the highest quality base oils available, and fortified with rust and oxidation inhibitors as well as extreme-pressure additives.

This product has been formulated with a special additive package, which ensures high film strength along with extreme pressure and anti-wear properties.

AGCO® Gear Box Grease is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.



Features	Benefits
NLGI Grade 0	This very soft National Lubricating Grease Institute rating means AGCO® EP-0 Gear Box grease works well in the low-speed, enclosed atmosphere of a gearbox
Moderately high dropping point: 340° F / 172° C	AGCO® EP-0 is designed to withstand gear box temperatures without breaking down. (The dropping - or melting - point is that at which the thickener begins to soften and release the base oil.)
Available in a 3.5-ounce (103.5ml) tube, a 14-ounce (414ml) tube, and a 16-ounce (415ml) tube.	Sizes for you and your customers

Specifications

Description	Characteristics
NLGI Grade	0
Thickener Type	Lithium
Thickener %	7 - 8
Texture	Smooth
Color	Amber
Worked Penetration, ASTM D-217, 77° F / 25° C	355
Dropping Point, ASTM D-2265, min	340° F / 172° C
Wheel Bearing Leakage, ASTM D-4290, gm loss	5
Water Washout, ASTM D-1264, % loss max	15
Rust Prevention, ASTM D-1743, Rating	1,1,1
Copper Corrosion, ASTM D-4048, Rating	1b
Oxidation Stability, ASTM D-942, PSI Drop	10
Oil Separation, ASTM D-1742, % loss	10
Four Ball Wear, ASTM D-2266, mm Scar, dia	0.60
Four Ball EP Weld Point, ASTM D-2596, min	250
Four Ball Load Wear Index, ASTM D-2596, kgf	40
Timken OK Load, ASTM D-2509, lb	40
Base Oil Characteristics - Viscosity	
@ 40° C, cSt (centistokes)	180 - 210
@ 100° C, cSt	15.5 - 17.5
@ 100° F, SUS	900 - 1,100
@ 210° F, SUS	78 - 90
Viscosity Index, min	80

AGCO® Super HI-TEMP Grease



AGCO® Super HI-TEMP is a non-soap lubricating grease formulated with quality base oils. Because this grease has no dropping point, it has excellent resistance to high temperatures with a working temperature range of – 40° F to +350° F / – 40° C to 176° C.

This product is perfect for various drive shaft and hub splines, wheel bearings and engine accessories. It features high load-carrying ability at high speeds, and is water-, corrosion- and oxidation-resistant.

AGCO® Super HI-TEMP Grease is recommended for a variety of AGCO® equipment brands and models. Consult your Operators Manual.

Features	Benefits
NLGI Grade 2	Moderately soft - National Lubricating Grease Institute Grade 2 - means this is ideal as an all-purpose lubricating grease
Excellent resistance to high temperatures; high load-carrying ability at high speeds; water-, corrosion- and oxidation-resistant	Protects drive shaft and hub splines, wheel bearings and engine accessories even during the toughest working conditions
No dropping point	Designed to withstand high temperatures without breaking down over long periods of time. (The dropping - or melting -point is that at which the thickener begins to soften and release the base oil.)
Available in a 16-ounce (473ml) tube.	Sized for you and your customers

Specifications

Description	Characteristics
NLGI Grade	2
Thickener Type	Inorganic
Texture	Smooth
Color	Amber
Worked Penetration, ASTM D-217, 77° F /25° C	265 - 295
Dropping Point, ASTM D-2265, min	None
Oil Viscosity at 100° F SUS (cSt @ 40° C)	750 (146)
Oil Viscosity at 210° F SUS (cSt @ 100° C)	67.2 (11.7)
Viscosity Index, min	40
Water, %, max	0.1

AGCO[®] Lithium II Multi-Purpose EP-2 (Extreme Pressure) Grease

This lithium-based lubricating grease is formulated with the highest-quality virgin base oils available. AGCO Lithium II Multi-Purpose Grease is also formulated with a special additive package, which ensures anti-wear and extreme pressure properties.

This product is fortified with rust and corrosion inhibitors as well as oxidation inhibitors to make this a truly versatile multi-purpose lubricant.

AGCO[®] Lithium II Multi-Purpose Grease is recommended for a variety of AGCO[®] equipment brands and models. Consult your Operators Manual.



Features	Benefits
NLGI Grade 2	Moderately soft - National Lubricating Grease Institute Grade 2 - means this is ideal as a multi-purpose lubricating grease
Moderately high dropping point: 350° F / 177° C	AGCO [®] Lithium II Grease is designed to withstand high temperatures without breaking down. (The dropping - or melting - point is that at which the thickener begins to soften and release the base oil.)
Available in a 14-ounce (414ml) tube and a 35-pound (15.87kg) pail.	Sizes for you and your customers

Specifications

Description	Characteristics
NLGI Grade	2
Thickener Type	Lithium II
Thickener %	7 - 8
Texture	Smooth
Color	Dark Amber
Worked Penetration, ASTM D-217, 77° F / 25° C	265 - 295
Dropping Point, ASTM D-2265, min	350° F / 177° C
Rust Prevention, ASTM D-1743, Rating	1,1,1
Oxidation Stability, ASTM D-942, PSI Loss, max	10
Oil Separation, ASTM D-1742, % Loss, max	5
Four-Ball EP Weld Point, ASTM D-2596, max	200
Four-Ball Load-Wear Index, ASTM D-2596, kgf	30
Timken OK Load, ASTM D-2509, lb	35
Base Oil Characteristics - Viscosity	
@ 40° C, cSt (centistokes)	159 - 204
@ 100° C, cSt	14.3 - 16.8
@ 100° F, SUS	840 - 1,080
@ 210° F, SUS	76.5 - 87.5
Viscosity Index, min	80

AGCO® Heavy-Duty Wheel Bearing Grease

AGCO® Heavy-Duty Wheel Bearing Grease is a premium, state-of-the-art lithium complex grease. This multi-purpose product has a high dropping point (in excess of 500° F / 260° C), which ensures retention where high temperatures are encountered. This product is formulated with a special additive package that insures high film strength as well as extreme pressure and anti-wear properties. High-quality virgin base fluids provide excellent natural oxidation inhibition and, combined with effective antioxidants as well as corrosion inhibitors, provide extra stability under storage and extreme service conditions.



- Recommended for Disc Brake Wheel Bearings, including those found on a variety of AGCO® equipment brands and models. Consult your Operators Manual.
- Meets NLGI (National Lubricating Grease Institute) Certification GC-LB

Features	Benefits
NLGI Grade 2	Moderately soft - National Lubricating Grease Institute Grade 2 - means this is ideal as an all-purpose lubricating grease
Meets NLGI Certification GC-LB	This indicates a multi-purpose classification and is your assurance AGCO® Grease will perform well for both chassis and wheel bearing applications
High dropping point: >500° F / 260° C	AGCO® Heavy-Duty Wheel Bearing Grease is designed to withstand high temperatures without breaking down.
Available in a 16-ounce (473ml) tub.	Sized for you and your customers

Specifications

Description	Characteristics
NLGI Grade	2
Thickener	Lithium Complex
Texture	Smooth / Buttery
Color	Amber
Worked Penetration, ASTM D-217, 77° F / 25° C	265 - 295
Dropping Point ASTM D-2265, min	500° F / 260° C
Wheel Bearing Leakage, ASTM D-4290, gm loss	6
Water Washout, ASTM D-1264, % loss max	7
Rust Prevention, ASTM D-1743, Rating	1,1,1
Copper Corrosion, ASTM D-4048, Rating	1b
Oxidation Stability, ASTM D-942, PSI Drop	7
Oil Separation, ASTM D-1742, % loss	3.5
Four-Ball Wear, ASTM D-2266, mm Scar, dia	60
Four-Ball EP Weld Point, ASTM D-2596, min	200
Four-Ball Load Wear Index, ASTM D-2596, kgf	40
Timken OK Load, ASTM D-2509 lb	50
Base Oil Characteristics - Viscosity	
@ 40° C, cSt (centistokes)	140 - 180
@ 100° C, cSt	13.5 - 16.5
@ 100° F, SUS	735 - 950
@ 210° F, SUS	73.5 - 86.0
Viscosity Index, min	90

AGCO® Antifreeze & Summer Coolant

Dual-purpose AGCO® Antifreeze is a universal formula that meets or exceeds the exacting performance requirements for both diesel and gasoline engine cooling systems.

AGCO® Antifreeze protects all cooling system parts, including aluminum and high lead solders and meets heavy-duty standards for low silicate antifreeze.

Meets or exceeds all requirements for:

AUTOMOBILE

- ASTM D-3306, ASTM D-4340
- Chrysler MS 7170
- Ford ESE-M97B44-A
- GM 1825M (Aluminum)
- SAE J1034

HEAVY-DUTY

- ASTM D-4985
- Caterpillar
- Cummins 90T8-4
- GM 1899M (Non-Aluminum)
- John Deere H24B1/C1
- Mack Truck
- RP-302B Maintenance Council American Trucking
- SAE J1941
- Volvo/GM Heavy Truck Corporation



U.S.



Canada

Features	Benefits
Dual purpose	Versatile to meet the exacting requirements for both automotive gasoline, and heavy-duty diesel applications
Exclusive protection system	Protects cooling system parts from corrosion, scale and sludge
Available in a 1-gallon (3.78L) jug and 55-gallon (208L) drum.	Sizes for you and your customers

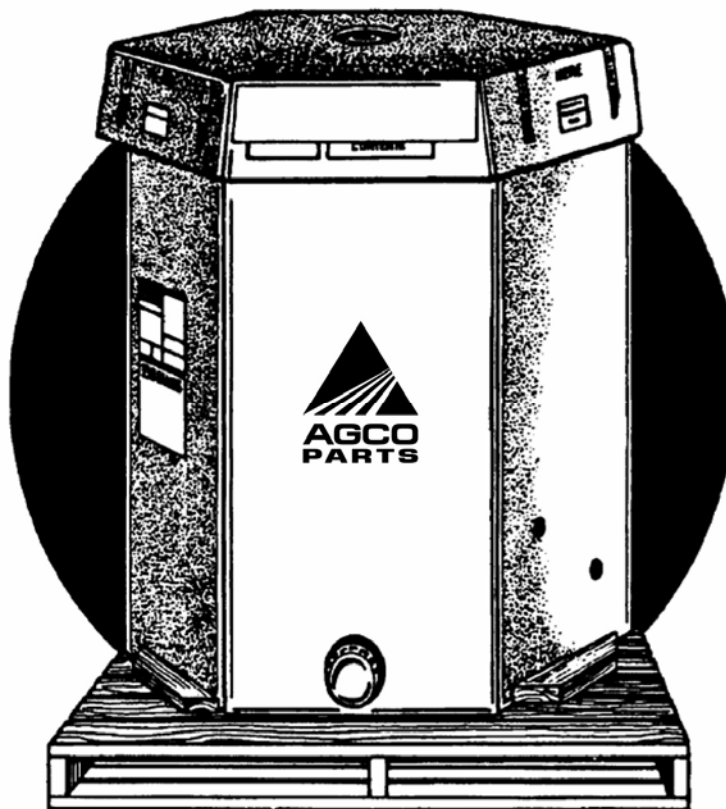
Specifications

Description	Characteristics
Total Glycols, wt%, ASTM D-202	95%, min
Total Water, wt%, ASTM D-1123	5%, max
Reserve Alkalinity, ASTM D-1121	11 ml, min
pH 50% Volume Solution, ASTM D-1287	10 min - 11 max
Flash Point, COC, ASTM D-92	250° F, min
Boiling Point, Reflux, ASTM D-1120	325° F, min
Specific Gravity at 60/60° F, ASTM D-1122	1.120 - 1.130
Foam Test, ASTM D-1881	50 ml/3 sec., max
Silicon	250 ppm, max
Color	Green

AGCO® Liquid Packs

110 and 330 Gallons (416L, 1,249L)

- **The Liquid Pack** corrugated container makes for easy transport and storage of products.
- **Easily disposable:** biodegradable, fully recyclable.
- **Available in two sizes**, the Liquid Pack is manufactured from durable triplewall and triplewall-laminated components.
- **Dimensions**
 - ✓ **110-gallon (416L) Liquid Pack**
Outside diameter: 32" x 32" x 37"
(82cm x 82cm x 94cm)
w/ a 43" (110cm) fill height
 - ✓ **330-gallon (1,249L) Liquid Pack**
Outside diameter: 51" x 45" x 47"
(130cm x 115cm x 120cm)
w/ a 52" (132.1cm) fill height



Features

- High-performance triplewall and triplewall laminate body w/ doublewall base
- 20-mil PVC-formed octagonal bag
- 6" (152.4mm) threaded top fill port
- 2" (50.8mm) barrel fitting for pump
- 2" (50.8mm) discharge port for use w/ reusable gate valve

Benefits

- Economical
 - 110 gallon replaces two metal drums
 - 330 gallon replaces six metal drums
- Biodegradable; totally recyclable
- Collapsible for landfill disposition
- Reduced tare weights and storage space
- View slots
- Valve spout located on front surface for tilt dispensing

Stacking Liquid Packs Can Cause Damage!

Stacking 110- and 330-gallon Liquid Packs is not recommended.
AGCO® cannot assume liability for damages or replacement of lubricants resulting from mishaps due to stacking liquid packs.

Liquid Packs Available for These AGCO® Lubricants and Oils

	110-gal (416L)	330-gal (1,249L)
AGCO® Powerlube Multiguard® Motor Oil SAE 5W-30		X
AGCO® Powerlube Multiguard® Engine Oil SAE 10W-30	X	X
AGCO® Powerlube Multiguard® Engine Oil SAE 15W-40	X	X
AGCO® Powerlube Multiguard® Engine Oil SAE 30	X	X
AGCO® Gearlube 715 / M1134 SAE 80W-90	X	
AGCO® AW ISO 100 (Heavy) Hydraulic Oil	X	X
AGCO® Permatran® 821XL T&H Oil SAE 10W-30.....	X	X
AGCO® Powerfluid 411 ATF SAE 5W-20.....	X	X

Massey Ferguson® Lubricants and Oils Specifications and Benefits

*- Available only to Massey Ferguson® dealers -
unless otherwise noted*



NOTES

Massey Ferguson[®] Lubricants and Oils

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Massey Ferguson® Multiguard®

SAE 15W-40 Engine Oil

A super-premium heavy-duty engine oil blended with high-quality Group II base stocks meeting global performance specifications for new cleaner-burning EGR (Exhaust Gas Recirculation) engines. Formulated to give outstanding soot control and improved protection against oxidation. Gives superior performance for today's high-performance, fuel efficient, and low-emission diesel and gasoline engines operating in severe conditions.

Meets or exceeds all requirements for:

- ACEA 02-E2/B3/A2
 - Detroit Diesel 7SE 270
 - MIL-L-2104E
 - Caterpillar ECF-1
 - Mack EO-M Plus
 - MIL-L-46152D
 - Caterpillar TO-2
 - MAN 271
 - Volvo VDS, VDS-2
 - Detroit Diesel Allison C-4
 - Mercedes-Benz 228, 229.1
- Meets performance requirements of Cummins CES 20078 and 20076



Features	Benefits
Greatly improved engine durability	<ul style="list-style-type: none"> Improved viscosity control of soot-laden oil Shorter oiling times to critical areas during start up at low temperatures Enhanced bearing protection Longer seal life Meets new EGR engine requirements
Extended drain capacity	<ul style="list-style-type: none"> Greater oxidation stability at higher oil temperatures Reduced oil consumption Improved protection against premature oil filter exhaustion
Advanced additive system	Outstanding engine protection under both pre- and post-2002 EPA exhaust particulate emissions standards in both high- and low-sulphur fuels
SAE 15W-40 exceeds Mack T-10 test	Ring/liner wear, lead corrosion, oil consumption. Merit system.
Exceeds Cummins M-11 EGR test	Sliding valve train wear with high soot, sludge, filter pressure and ring weight loss
Energy conserving	Reduces fuel usage
Meets MIL-L-2104	Military's most comprehensive oil specification
Meets Allison C-4	One product for engine and Allison transmissions
Available in a 1-quart (0.946L) bottle, 1- and 2.5-gallon (3.78L, 9.46L) jugs, and a 5-gallon (18.9L) pail. Product only available on a direct-ship order only.	Sizes for your customers

Massey Ferguson® Multiguard® SAE 15W-40 Engine Oil



Specifications

Description	Characteristics
SAE Viscosity Grade	15W-40
API Service Categories	CI-4, CH-4, CG-4, CF-4, CF-2, CF, SJ, SL
API Gravity °	29.7
Flash Point, COC, min	446° F / 222° C
Flash Point, PMCC, min	396° F / 202 ° C
Cold Crank Simulator cP (centipoise) HTHS @ 150° C, cP	5,160 @ -20° C 4.22
Volatility, NOACK	12.6
Orbahn Shear, EOT, cSt (centistokes)	13.21
Viscosity, cSt, @ 40° C @ 100° C	110.38 15.07
Viscosity, SUS, @ 100° F @ 210° F	512 78.2
Viscosity Index, min	142
Pour Point	-40° F / -42° C
Pounds Per U.S. Gallon	7.309
Total Base Number (TBN)	9.4
Sulfated Ash, mass%	1.198
Foam, Seq I Tend-Stab, ml	0/0
Foam, Seq II Tend-Stab, ml	0/0
Foam, Seq III Tend-Stab, ml	0/0

Massey Ferguson® Permatran® T&H Oil SAE 10W-30

Massey Ferguson® Permatran® T&H Oil is specially formulated with the finest quality, hydrotreated, high-viscosity index, paraffinic base oils and the most advanced and rigorously-tested additive system to deliver 'above and beyond' protection and performance. Group II base stocks provide the added benefits of improved thermal and oxidation performance and low temperature properties.

Meets or exceeds oil requirements for:

AGCO: AGCO® Permatran® 821XL

Allis-Chalmers 626371, Powerfluid 821XL

Massey Ferguson® Permatran® M-1143, M-1141, M-1135,

M-1129A, M-1127A/B, M-1110, M-2235

White Farm Equipment™ UHTF, Oliver® Type 55 fluids,

Q-1826, Q-1766, Q-1722, Q-1766B

ABEX/Dennison: Hydraulic Fluid HF-0 (all pumps), HF-2, HF-1

CNH: Case IH Hy-Tran Plus, Hy-Tran Ultra, 1208, MS-1209, MS-1210 (TCH Fluid), MS-1230

Ford New Holland M2C134 A/B/C/D, M2C86 A/B,

M2C53 A/B, M2C41 A/B

Hesston® Fiat Oilofiat Tutela Multi-F, AF-87

International Harvester Hy-Tran B6

JI Case TFD Fluid (MS-1024, JIC-185), TFDII Fluid (MS-1205, JIC-145), Powergard PTF Fluid (MS-1206, MS-1210)

Poclain Equipment for High Pressure

Steiger HTF SEMS 17001

Versatile Gear and Hydraulic Transmission Fluid ESN-M2C134D

Caterpillar: TO-2, MTO

Clark: Lift Truck Transmission Fluid TA12, TA18, HR 500, HR 600

Deutz: Hydraulic Transmission Fluid

Grove Manufacturing: Hydraulic Fluid

John Deere: Hy-Gard, J-20C (J-20A), J-14B/C, Hydrostatic Fluid (J-21A), Type 303 Fluid

Komatsu Dresser: Transmission/Hydraulic Fluid

Kubota: UDT Hydraulic Fluid, Universal Transdraulic Fluid

Renk: Bus ATF

Sauer-Danfoss (Sundstrand): Hydrostatic Transmission Fluid

Sperry Vickers: M-2950-S Mobil Hydraulics, I-286-S Industrial Hydraulics

ZF: TE-ML-03E (Torque Converter Transmission Off-Highway and Industrial)

TE-ML-05F (Off-Road Axles with the exception of hybrid gears)



Features	Benefits
SAE 10W-30	Suitable for year-round use
API Service GL-4	Mild Extreme Pressure (EP) system allows use in farm tractors or farm equipment that requires one lubricant for transmission, final drives and hydraulic systems.
Meets requirements of major OEM manufacturers	Universal lubricant for most tractors. Simplifies product inventory. One product for most transmission, hydraulic, axle and final drive systems.
Available in a 1-quart (0.946L) bottle, 1- and 2.5-gallon (3.78L, 9.46L) jugs, and a 5-gallon (18.9L) pail. Product only available on a direct-ship order only.	Sizes for your customers

Massey Ferguson® Permatran® T&H Oil SAE 10W-30

Massey Ferguson® Permatran® is recommended for a variety of Massey Ferguson® equipment. Consult your Operators Manual.



Specifications

Description	Characteristics
SAE Viscosity Grade	10W-30
API Service Category	GL-4
API Gravity °	28.5
Flash Point, COC, min	207° F / 224° C
Viscosity, cSt (centistokes), @ 40° C	57.6
@ 100° C	9.23
Brookfield Viscosity, cP (centipoise), @ -35° C	32,593
@ -20° C	3,960
Viscosity Index, min	141
Pour Point	-30° F / -33° C
Pour Cycle, 203	-44° F / -42° C
Pounds Per U.S. Gallon	7.3
Foam, Seq 1 Tend-Stab, ml	TR-0
Foam, Seq 2 Tend-Stab, ml	10-0
Foam, Seq 3 Tend-Stab, ml	TR-0
Foam, Break Time, SEC	10
Foam, Seq 1 T-S + 0.5% H2O	TR-0
Foam, Seq 2 T-S + 0.5% H2O	10-0
Foam, Seq 3 T-S + 0.5% H2O	TR-0

Massey Ferguson® Low-Temp T&H Oil SAE 10W

Massey Ferguson® Low-Temp Transmission & Hydraulic Oil SAE 10W is formulated with lighter base stocks to give it superior low-temperature performance. Low Temp T&H Oil is NOT recommended for summer use.

Massey Ferguson® Low-Temp Transmission and Hydraulic Oil is recommended for winter use as a replacement for AGCO® Permatran® 821 XL and Massey Ferguson® Permatran® T&H oils, and is specified for use in Massey Ferguson® 8400 Series combines as well as other Massey Ferguson® equipment. Consult your Operators Manual.

NOTE: This product is available for purchase by all AGCO® dealers.



Features	Benefits
Formulated with lighter base stocks	Superior low-temperature performance
Available in a 5-gallon (18.9L) pail, and only on a direct-ship order.	Sized for you and your customers

Specifications

Description	Characteristics
SAE Viscosity Grade	10W
Flash Point, COC, max	194° C
Viscosity, cSt (centistokes)	
@ 40° C	32
@ 100° C	7.1
Viscosity, Brookfield	
@ -25° C	2,162
@ -35° C	8,309
@ -40° C	21,000
Viscosity Index, min	193
Pour Point, max	-45° C
Foam, Seq 1 Tend-Stab, ml	25/NIL
Foam, Seq 2 Tend-Stab, ml	5/NIL
Foam, Seq 3 Tend-Stab, ml	25/NIL
Foam, Break Time, SEC	10
Foam, Seq 1 T-S + 0.5% H2O	TR-0
Foam, Seq 2 T-S + 0.5% H2O	10-0
Foam, Seq 3 T-S + 0.5% H2O	TR-0

Massey Ferguson® 150

EP Gear Lubricant

Massey Ferguson® 150 Extreme Pressure (EP) synthetic gear lubricant is recommended specifically for industrial worm gear lubrication, but may also be considered as a general-purpose gear lubricant for critical applications. It is based on polyalkylene glycol (PAG) synthetic base fluids that provide excellent thermal and oxidative stability, load-carrying capability, and sludge-free performance over an extremely wide temperature range. Provides low foaming tendencies and good rust protection, even in salt-water environments.

Specifically blended for the Massey Ferguson® 1233 Mower.

Features	Benefits
Synthetic (polyalkylene glycol) gear lubricant	Specifically recommended for industrial worm gear lubrication
Low foaming tendencies and good rust protection	Assured excellent performance, even in salt-water environments
Available in a 16-ounce (473ml) tube on a PDC order only.	Sized for your customers

Specifications

Description	Characteristics
Cone Penetration	400 - 420
Dropping Point	162° C
Sulfated Ash, wt 0/0%	0.5
Thickener Type	Lithium Stearate
Base Fluid	Polyalkylene Glycol
Viscosity, cSt (centistokes), @ 40° C	147
@ 100° C	24.5
Viscosity Index, min	200
Specific Gravity, kg/l 15.6° C	1.007
Flash Point, COC	530° F
Pour Point	-30° F
Acid Number, mg KOH/g	0.6
Rust Protection	Pass
FZG Gear Test, final stage	11

Massey Ferguson® HI-TEMP EP-2 (Extreme Pressure) Grease

HI-TEMP is an Extreme Pressure (EP-2) non-soap-thickened polyurea lubricating grease formulated with high-quality raw materials. It is also fortified with rust and oxidation inhibitors and extreme-pressure additives. HI-TEMP Grease offers a dropping point of more than 500° F (260° C). It performs well in areas where water washout is a major concern.

The chemical and physical properties of HI-TEMP make it superb as an all-purpose lubricating grease.

Massey Ferguson® HI-TEMP EP-2 Grease is recommended for a variety of Massey Ferguson® equipment. Consult your Operators Manual.

Features	Benefits
NLGI Grade 2	Moderately soft - National Lubricating Grease Institute Grade 2 - means this is ideal as an all-purpose lubricating grease
High dropping point: >500° F / 260° C	Massey Ferguson® HI-TEMP EP-2 Grease is designed to withstand high temperatures without breaking down. (The dropping - or melting -point is that at which the thickener begins to soften and release the base oil.)
Available in a 14-ounce (414ml) tube.	Sized for you and your customers

Specifications

Description	Characteristics
NLGI Grade	2
Thickener Type	Polyurea
Texture	Smooth
Color	Blue
Worked Penetration, ASTM D-217, 77° F / 25° C	265 - 295
Dropping Point, ASTM D-2265, min	500° F / 260° C
Water Washout, D-1264, % loss, max	10
Rust Prevention, D-1743	Pass
Copper Corrosion, D-4048, Rating	1b
Oxidation Stability, D-942, PSI Loss, max	5
Oil Separation, D-1742, % Loss, max	5
4-Ball EP, Weld Point, D-2596, min	400
Load Wear Index, D-2596, kgf	50
4-Ball Wear Scar, mm	0.51
Timken OK Load, D-2509, lb	60
Base Oil Characteristics - Viscosity	
@ 40° C, cSt (centistokes)	135 - 155
@ 100° C, cSt	13.5 - 15.5
@ 100° F, SUS	625 - 725
@ 210° F, SUS	60 - 70
Viscosity Index, min	70

Massey Ferguson® Moly EP-2 (Extreme Pressure) Lithium II Grease

Moly Lithium Extreme-Pressure (EP-2) Grease is a high-quality multi-purpose lithium grease, designed for lubricating heavy-duty automotive and industrial equipment, where heavy loads and wet conditions require high film strength and resistance to water washing.

Formulated with the highest quality base oils available, Moly EP-2 Grease is fortified with rust and oxidation inhibitors as well as extreme pressure additives. In addition, it is fortified with Molybdenum Disulfide to protect against seizure under high loads and severe shock load conditions. With its special additive package, Massey Ferguson® Moly EP-2 grease retains its lubricating ability over long periods of heavy use, and will not harden in bearings.

Massey Ferguson® Moly EP-2 Lithium II Grease is recommended for a variety of Massey Ferguson® equipment. Consult your Operators Manual.

Features	Benefits
NLGI Grade 2	Moderately soft - National Lubricating Grease Institute Grade 2 - means this is ideal as an all-purpose lubricating grease
Moderately high dropping point: 350° F / 177° C	Moly EP2 Grease is designed to withstand high temperatures without breaking down over long periods of time. (The dropping - or melting - point is that at which the thickener begins to soften and release the base oil.)
Available in a 14-ounce (414ml) tube	Sized for you and your customers

Specifications

Description	Characteristics
NLGI Grade	2
Thickener Type	Lithium II
Thickener %	7 - 8
Texture	Smooth
Color	Gray
Worked Penetration, ASTM D-217, 77° F / 25° C	265 - 295
Dropping Point, ASTM D-2265, min	350° F / 177° C
Wheel Bearing Leakage, D-4290, gm loss	5
Water Washout, D-1264, % loss max	10
Rust Prevention, D-1743, Rating	1,1,1
Copper Corrosion, D-4048, Rating	1b
Oxidation Stability, D-942, PSI drop	5
Oil Separation, D-1742, % loss	10
Four Ball Wear, D-2266, mm Scar dia	0.40 - 0.50
Four Ball EP Weld Point, D-2596, min	250
Four Ball Load Wear Index, D-2596, kgf	40
Timken OK Load, D-2509, lb	45
Base Oil Characteristics - Viscosity	
@ 40° C, cSt (centistokes)	132 - 152
@ 100° C, cSt	11.0 - 13.4
@ 100° F, SUS	700 - 800
@ 210° F, SUS	65 - 70
Viscosity Index, min	50

Massey Ferguson®

Super HI-TEMP Inorganic #2 Grease

Super HI-TEMP Inorganic #2 Grease is a non-soap lubricating grease formulated with quality base oils. Because this grease has no dropping point, it has excellent resistance to high temperatures with a working temperature range of -40° F to +350° F.

Perfect for various drive shaft and hub splines, wheel bearings and engine accessories, Massey Ferguson® HI-TEMP Inorganic #2 Grease features high load-carrying ability at high speeds. It also resists water corrosion and oxidation.

Massey Ferguson® Super HI-TEMP Inorganic #2 Grease is recommended for a variety of Massey Ferguson® equipment. Consult your Operators Manual.

Features	Benefits
NLGI Grade 2	Moderately soft - National Lubricating Grease Institute Grade 2 - means this is ideal as an all-purpose lubricating grease
No dropping point	Designed to withstand high temperatures without breaking down over long periods of time. (The dropping - or melting -point is that at which the thickener begins to soften and release the base oil.)
Available in a 14-ounce (414ml) tube on a PDC order only.	Sized for you and your customers

Specifications

Description	Characteristics
NLGI Grade	2
Thickener Type	Inorganic
Texture	Smooth
Color	Amber
Worked Penetration, 77° F / 25° C	265 - 295
Dropping Point, °F / °C, min	None
Oil Viscosity at 100° F SUS (cSt @ 40° C)	750 (146)
Oil Viscosity at 210° F SUS (cSt @ 100° C)	67.2 (11.7)
Viscosity Index, min	40
Water, %, max	0.1

Massey Ferguson[®] Lithium II Multi-Purpose EP-2 Grease

This lithium-based lubricating grease is formulated with the highest-quality virgin base oils available. Massey Ferguson[®] Lithium II Multi-Purposes EP-2 Grease is also formulated with a special additive package, which ensures anti-wear and extreme pressure properties.

In addition, Lithium II Multi-Purpose is fortified with rust and corrosion inhibitors as well as oxidation inhibitors to make this a truly versatile multi-purpose lubricant.

Massey Ferguson[®] Lithium II Multi-Purpose EP-2 Grease is recommended for a variety of Massey Ferguson[®] equipment. Consult your Operators Manual.

Features	Benefits
NLGI Grade 2	Moderately soft - National Lubricating Grease Institute Grade 2 - means this is ideal as a multi-purpose lubricating grease.
Moderately high dropping point: 350° F /177° C	Lithium II Grease is designed to withstand high temperatures without breaking down. (The dropping - or melting -point is that at which the thickener begins to soften and release the base oil.)
Available in a 14-ounce (414ml) tube.	A sizes for you and your customers

Specifications

Description	Characteristics
NLGI Grade	2
Thickener Type	Lithium II
Thickener %	7 - 8
Texture	Smooth
Color	Dark Amber
Worked Penetration, ASTM D-217, 77° F / 25° C	265 - 295
Dropping Point, ASTM D-2265, min	350° F / 177° C
Rust Prevention, D-1743, Rating	1,1,1
Oxidation Stability, D-942, PSI Loss, max	10
Oil Separation, D-1742, % Loss, max	5
4-Ball EP Weld Point, D-2596, max	200
4-Ball Load-Wear Index, D-2596, kgf	30
Timken OK Load, D-2509, lb	35
Base Oil Characteristics – Viscosity	
@ 40° C, cSt (centistokes)	159 - 204
@ 100° C, cSt	14.3 - 16.8
@ 100° F, SUS	840 - 1,080
@ 210° F, SUS	76.5 - 87.5
Viscosity Index, min	80

Massey Ferguson® Heavy-Duty Wheel Bearing Grease

Massey Ferguson® Heavy-Duty Wheel Bearing Grease is a premium, state-of-the-art lithium complex grease. This multi-purpose product has a high dropping point (in excess of 500° F / 260° C), which insures retention where high temperatures are encountered. This product is formulated with a special additive package that insures high film strength as well as extreme pressure and anti-wear properties. High-quality virgin base fluids provide excellent natural oxidation inhibition and, combined with effective antioxidants as well as corrosion inhibitors, provide extra stability under storage and extreme service conditions.

- Recommended for Disc Brake Wheel Bearings, including those found on Massey Ferguson® equipment. Consult your Operators Manual.
- Meets NLGI (National Lubricating Grease Institute) Certification GC-LB

Features	Benefits
NLGI Grade 2	Moderately soft - National Lubricating Grease Institute Grade 2 - means this is ideal as an all-purpose lubricating grease
Meets NLGI Certification GC-LB	This indicates a multi-purpose classification and is your assurance AGCO Grease will perform well for both chassis and wheel bearing applications
High dropping point: >500° F / 260° C	Heavy-Duty Wheel Bearing Grease is designed to withstand high temperatures w/o break down.
Available in a 16-ounce (473ml) tub.	Sized for you and your customers

Specifications

Description	Characteristics
NLGI Grade	2
Thickener	Lithium Complex
Texture	Smooth / Buttery
Color	Amber
Worked Penetration, ASTM D-217, 77° F / 25°C	265 - 295
Dropping Point, ASTM D-2265, min	500° F / 260° C
Wheel Bearing Leakage, D-4290, gm loss	6
Water Washout, D-1264, % loss max	7
Rust Prevention, D-1743, Rating	1,1,1
Copper Corrosion, D-4048, Rating	1b
Oxidation Stability, D-942, PSI drop	7
Oil Separation, D-1742, % loss	3.5
Four-Ball Wear, D-2266, mm Scar dia	60
Four-Ball EP Weld Point, D-2596, min	200
Four-Ball Load Wear Index, D-2596, kgf	40
Timken OK Load, D-2509, lb	50
Base Oil Characteristics - Viscosity	
@ 40° C, cSt (centistokes)	140 - 180
@ 100° C, cSt	13.5 - 16.5
@ 100° F, SUS	735 - 950
@ 210° F, SUS	73.5 - 86.0
Viscosity Index, min	90

Miscellaneous Brand Lubricants and Oils Specifications and Benefits

- Open to all wholegoods brands -



NOTES

Miscellaneous Lubricants and Oils

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Castrol Syntec Full Synthetic Gear Oil SAE 75W-90

Castrol Syntec Full Synthetic Gear Oil provides maximum protection under severe service conditions and added assurance during extended drain intervals. It also provides improved thermal stability and excellent shear stability for superior wear protection. Castrol Syntec is fully compatible with all conventional and synthetic API GL-5 and MT-1 gear oils.



Meets or exceeds the following protection requirements:

- Meets the requirements of Mack GO-H/S
- Exceeds the service fill requirements of conventional and limited slip differentials calling for SAE 75W-90 and API Service GL-5 specifications
- Exceeds API Service GL-5 lubricant for extreme pressure conditions
- Exceeds API MT-1 lubricant for non-synchronized manual transmissions used in heavy-duty trucks

Features	Benefits
Improved thermal stability, excellent shear stability	Superior wear protection
API Service GL-5, MT-1	Full compatibility with all conventional and synthetic gear oils for maximum efficiency
Available in a 1-quart (0.946L) bottle.	Sized for you and your customers

Specifications

Description	Characteristics
API Service Categories	GL-5, MT-1
Specific Gravity, 60° F /15.5° C, ASTM D-1298	0.860
Viscosity, cSt (centistokes) @ 100° C, ASTM D-445	15
Brookfield Viscosity, cSt @ -40° C, ASTM D-2983	150,000
Viscosity Index, min	149
Flash Point, COC, ASTM D-92, min	390° F / 198° C
Fire Point, COC, ASTM D-92, min	>390° F / >198° C
Sulfur, %wt, ASTM D-4927	2.3
Pounds Per U.S. Gallon	7.16

Mobil 1 Synthetic ATF

(Automatic Transmission Fluid)

Mobil 1 Synthetic ATF combines synthesized hydrocarbon base oils and a superior balanced additive system to provide significantly higher levels of performance above conventional fluids. This unique, advanced technology has demonstrated extended drain, long-term friction retention, and low-temperature capability. Further, it improves overall transmission durability and cleanliness.

- Mobil 1 Synthetic ATF recommended for use in modern high-performance automobiles, SUVs, SUTs, vans and other light trucks requiring Dexron III and Ford Mercon performance levels.
- Suitable for use in older vehicles that originally required Ford Type H and Type CJ fluids.
- Off-highway transmissions requiring Allison C-4, Caterpillar TO-2 performance.
- Recommended for Vickers 35VQ25 Vane and Sundstrand Piston pump test applications.
- Not recommended for Chrysler Type 7176 ATF



Features	Benefits
Enhanced, long-term frictional properties	Improves and extends transmission efficiency, performance and fuel economy
Exceptional thermal and oxidation stability	Keeps transmissions clean to extend life and performance even under severe driving conditions
Outstanding film-strength and anti-wear properties	Reduces wear, lengthens transmission life
Excellent low-temperature fluidity	Provides prompt and reliable lubrication at ambient temperatures down to -54° C
Enhanced, long-term frictional properties	Improves and extends transmission efficiency, smooth shifting performance and fuel economy
Available in a 1-quart (0.946L) bottle.	Sized for you and your customers

Specifications

Description	Characteristics
API Gravity °	37.3
Specific Gravity	0.838
Pour Point, min, ASTM D-97	-65° F / -54° C
Flash Point, min, ASTM D-92	420° F / 236° C
Base Oil Characteristics - Viscosity:	
cP @ -40° F / -40° C, Brookfield, ASTM D-5293	5,190
cP @ -10° F / -24° C, Brookfield, ASTM D-5293	1,210
cP @ -0° F / -18° C, Brookfield, ASTM D-5293	740
SUS @ 100° F	144
SUS @ 210° F	45
cSt @ 40° C, ASTM D-445	34
cSt @ 100° C, ASTM D-445	7.6
Viscosity Index, min, ASTM D-2270	199
Density @ 15° C kg/l, ASTM D-4052	0.86
Color	Red

Texaco Dex-Cool

Antifreeze / Coolant

Dex-Cool is for all cars and light-duty trucks. The patented, long-lasting carboxylate inhibitors have proven their long-term performance against the effects of extreme heat, corrosion and rust. Extended service intervals are made possible through a patented organic acid corrosion inhibitor system, which eliminates the need for silicates, phosphates, borates, nitrites and amines. The elimination of these additives is significant because many of them are abrasive to water-pump seals.

Dex-Cool is recommended for Spra-Coupe® Sprayer Models 3430 and 3630. Consult your Operators Manual for complete recommendations and specifications.

Meets or exceeds all requirements for:

- ASTM D-3306, ASTM D-4985
- GM 6277M

Not available in Canada



Features	Benefits
Single-phase, ethylene glycol type universal automotive engine coolant offers effective, long-term corrosion protection for all cooling system metals including aluminum, brass, cast iron, steel, solder and copper	Recommended for use in the cooling systems of all types of automotive engines; compatible with conventional antifreeze
Contains no phosphates or silicates	Improved water pump seal life
Boiling Protection: Recommended Dilution – 50% 1:1 (1 part antifreeze/1 part water)	265° F / 129.4° C
Freezing Protection: Recommended Dilution – 40% 2:3 (2 parts antifreeze/3 parts water)	-24.4° F / -12° C
Freezing Protection: Recommended Dilution – 50% 1:1 (1 part antifreeze/1 part water)	-34° F / -37.2° C
Freezing Protection: Recommended Dilution – 60% 3:2 (3 parts antifreeze/2 parts water)	-62° F / -52.2° C
Available in a 1-gallon (3.78L) jug.	Sized for you and your customers

Specifications

Description	Characteristics
Reserve Alkalinity, ASTM D-1121	6.0
pH 50% Volume Solution, ASTM D-1287	8.3
Freezing Point, ASTM D-1177	-36.7° C
Specific Gravity 15/15° C	1.130
Silicate, wt%	None
Color	Orange

Sierra Antifreeze / Coolant

Sierra helps protect against freeze-ups and demonstrates outstanding corrosion prevention performance in all standard industry tests.

Its propylene glycol formulation is less toxic, providing safety to children, pets and animals while attaining performance characteristics comparable to ethylene glycol-based antifreeze.

Sierra is recommended for Spra-Coupe® Sprayer Models 215, 216, 218, 220, 230, 3440, 3460, 4440 and 4640. Consult your Operators Manual for complete recommendations and specifications.

Meets requirements for:

- ASTM D-5216
- ASTM D-4985
- GM 1899 and GM 1825 (including ASTM D-1384, ASTM D-4340, ASTM D-2570, ASTM D-2809)
- ASTM D-3306



Features	Benefits
Propylene-glycol based coolant that provides engine protection comparable to that provided by premium-brand conventional ethylene-glycol based coolants	Provides outstanding performance in the four key areas of engine protection: freeze, boilover and corrosion protection, and heat transfer.
Propylene glycol formulation	Less toxic and safer than conventional ethylene glycol coolants to children, pets and wildlife
Available in a 1-gallon (3.78L) jug.	Sized for you and your customers

Sierra Antifreeze	Water	Protects Against Freeze-ups to (T°)	Protects Against Boilovers to (T°)*
40%	60%	-4° F (-20° C)	249° F (121° C)
50%	50%	-26° F (-32° C)	256° F (124° C)
60%	40%	-54° F (-48° C)	261° F (127° C)
66%	34%	-76° F (-60° C)	262° F (128° C)

*Closed system; 14 psi cap

Specifications

Description	Characteristics
Reserve Alkalinity, ASTM D-1121	11 - 12
pH 50% Volume Solution, ASTM D-1287	10.5 - 10.8
Freezing Point, 50% Volume Solution, ASTM D-1177	-26° F / -32° C
Boiling Point, 50% Volume Solution, ASTM D-1120	221° F / 105° C
Specific Gravity 60/60 °F, ASTM D-1122	1.05
Water, %mass, ASTM D-1123	3 - 5
Ash Content, %mass, ASTM D-1119	1.2
Color	Green

Polar RV Antifreeze

This antifreeze can be used when winterizing the liquid systems in application equipment, which will prevent liquid system lines and fittings from freezing and becoming damaged. It is ideal for all types of potable water supply systems and waste lines.



Completely drain all water lines and fill with RV antifreeze. For application equipment usage, spray throughout to insure complete antifreeze fills. Do not dilute with water.



Features	Benefits
Propylene-glycol based coolant designed for use on all types of potable water supply systems, including applicators and sprayers	Ideal for winterizing applicators to prevent freezing and damage
Propylene glycol formulation	Less toxic and safer than conventional ethylene glycol coolants to children, pets and wildlife
Available in a 55-gallon (208L) drum.	Sized for you and your customers

Specifications

Description	Characteristics
API Gravity °, ASTM D-287	06.87
Freezing Point, ASTM D-3321	10° F
Burst Temperature	-50° F
Specific Gravity, ASTM D-4052	1.0226
Color	Pink

Terminology

This section is intended to help you understand the words and phrases used throughout this guide.

NOTES

Abrasion - The wearing, grinding or rubbing away by friction. Abrasion is usually due to the presence of foreign matter such as dirt, grit or metallic particles in the lubricant.

Acid - Corrosive solution formed by the combination of hydrogen and oxygen atoms with metal or metallic radicals. Acidic solutions may be neutralized with a base or alkaline solution.

Additive - A chemical substance added to a petroleum base stock to impart or improve certain properties. Common petroleum product additives are: antifoam agent, anti-wear additive, corrosion inhibitor, demulsifier, detergent, dispersant, emulsifier, EP additive, oiliness agent, oxidation inhibitor, pour point depressant, rust inhibitor, tackiness agent, viscosity index (VI) improver.

Adhesion – The property of a lubricant that causes it to cling or adhere to a solid surface; wear occurring when surfaces contact, weld together and shear off.

AGMA (American Gear Manufacturers Association) www.agma.org

An industry organization of gear manufacturers and suppliers (400-plus worldwide) serving the gear industry; also responsible for developing technical standards.

API (American Petroleum Institute) www.api.org

The U.S. Petroleum industry's primary trade association, API membership includes approximately 400 companies and covers all aspects of the oil and natural gas industry, including exploration, production, and transportation, refining, and marketing. The development of consensus standards is one of API's oldest and most successful programs. Beginning with its first standards in 1924, API now maintains some 500 standards covering all segments of the oil and gas industry. Today, the API standards program has gone global, through active involvement in the development of International Standards Organization (ISO) standards suitable for use by a global industry.

API Service Rating (GL-5, MT-1) - This two-letter classification identifies the vehicle fuel type and quality level of the motor oil. The first letter indicates the vehicle fuel type that the oil is designed for. Ratings that begin with an 'S' are intended for gasoline engines. Ratings that begin with a 'C' are for diesel engines. The second letter designates the quality level of the motor oil. The higher the letter, the more advanced the oil and the more protection it offers your engine. In addition, an SJ oil can be used in any engine requiring an SB, SG, SH, etc. oil.



Antifoam Agent - Additive used to suppress the foaming tendency of lubricants in service. Improper amounts of antifoam will lead to air entrainment, which also leads to lubrication problems.

Antifreeze - Solution in an engine cooling system that lowers the coolants' freezing point and raises its boiling point.

Antioxidant (Oxidation Inhibitor) - An additive that retards oxidation of a lubricant.

Antiwear (AW) Additive - An additive that forms a thin, tenacious film on loaded parts to prevent metal-to-metal contact.

Ash - Metallic deposits formed in the combustion chamber and other engine parts during high temperature operation.

Ash, Sulfated - The ash content of an oil, determined by charring the oil, treating the residue with sulfuric acid, and evaporating to dryness. Expressed as % per mass.

ASTM International www.astm.org

Formerly The American Society for Testing Materials, ASTM International is an international voluntary standards organization that develops and produces technical standards for materials, products, systems, services and test methods. It was formed in 1898 in the United States as the American Society for Testing and Materials by a group of scientists and engineers who wanted to address the frequent rail breaks plaguing the fast-growing railroad industry. The group developed a standard for the steel used to fabricate rails. Today, ASTM International maintains more than 12,000 standards. The Annual Book of ASTM Standards consists of 77 volumes. Membership in the organization is open to anyone with an interest in the fields the organization services. Members represent manufacturers, users, governments and academia from more than 100 countries.

AFNOR (Association française de normalization) www.afnor.fr

ISO Standards member body based in France responsible for the promotion of French standards at the international level.

ATF - Automatic Transmission Fluid

Ball Bearing - A class of bearing in which the moving surface is separated from the stationary surface by elements in the form of balls.

Base Number - The amount of acid needed to neutralize all or part of a lubricant's basicity.

Base Oil - A base stock or blend of base stocks used in an API-licensed engine oil.

Base Oil Stock - The base fluid, usually a refined petroleum fraction or a selected synthetic material, into which additives are blended to produce finished lubricants.

Bases - Compounds that react with acids to form salts plus water. Alkalis are water-soluble bases used in petroleum refining to remove acidic impurities. Oil soluble bases are included in lubricating oil additives to neutralize acids formed during the combustion of fuel or oxidation of the lubricant.

Biodegradable - Ability of a material to be broken down, within given time and environmental factors, by naturally occurring bacteria into simple substances that do not harm the environment.

Blow-By - Passage of unburned fuel and combustion gases past the piston rings of internal combustion engines, resulting in fuel dilution and contamination of the crankcase oil.

Boundary Lubrication - Lubrication between two rubbing surfaces without developing a full fluid lubricating film. This occurs under high loads and requires the use of antiwear or extreme-pressure additives to prevent metal-to-metal contact.

Brookfield Viscosity - One measurement of a lubricant's viscosity in cold weather conditions; determined by a Brookfield viscometer.

Cavitation - The formation and collapse of vapor bubbles within a liquid.

CentiPoise (cP) - A unit of measure for absolute viscosity. 1 centiPoise = 0.01 poise.

CentiStoke (cSt) - A unit of kinematic viscosity, equal to the viscosity in poises divided by the density of the fluid in grams per cc. Equal to one-hundredth of a stoke. Unit of measure for kinematic viscosity.

Channel Point - As you reduce the temperature of an oil toward the pour point, you reach a point where you can run your finger through an oil and it will not fill in the trench you leave behind. Example: the gearing in the rear end of a car. Although the gears might move, the gear oil will not flow back into the gear to lubricate it readily.

Cleveland Open Cup (COC) - An apparatus used to determine the flash and fire points of petroleum products other than fuel oils as well as those having an open cup flash below 79° C / 175° F.

Cloud Point - The temperature at which a cloud of wax crystals appears when a lubricant or distillate fuel is cooled under standard conditions. Indicates the tendency of the material to plug filters or small orifices under cold-weather conditions.

Cold Crank Simulator (CCS) - An intermediate shear rate viscometer that predicts the ability of an oil to permit a satisfactory cranking speed to be developed in a cold engine (ASTM D-5293).

Compatibility - A lubricant's ability to be mixed with another lubricant without detriment to either lubricant. Also, the ability to come into contact with other components or materials without detrimental effects.

Contaminant - Any material that is unwanted or adversely affects the fluid power system and/or its components.

Coolant - Fluid used to remove heat. Commonly found in an engine's cooling system.

Copper Strip Corrosion - Qualitative measure of the tendency of a liquid to corrode pure copper.

Crude Oil - Naturally occurring petroleum, before any refining or treatment.

Demulsibility - The ability of a fluid that is insoluble in water to separate from water with which it may be mixed in the form of an emulsion; the measure of a fluid's ability to separate from water.

Detergent - Additive intended to keep engine parts clean. In motor oil formulations, the most commonly used detergents are metallic soaps with a reserve of basicity to neutralize acids formed during combustion.

Detergency - The ability of an engine oil to clean and neutralize harmful acids.

DIN (Deutsches Institut für Normung) www.en.din.de

German National Standard. A non-governmental organization established to promote the development of standardization and related activities in Germany and related markets. Its goal is to facilitate the international exchange of goods and services, and to develop cooperation in the spheres of intellectual, scientific, technological and economic activity.

Dispersant - In lubrication, a term usually used interchangeably with detergent. An additive, usually nonmetallic (ashless), keeps fine particles of insoluble materials in a homogeneous solution. Hence, particles are not permitted to settle out and accumulate. This additive helps keep solid contaminants in crankcase oil in colloidal suspension, preventing sludge and varnish deposits on engine parts.

Dropping Point - Temperature at which grease passes from a semi-solid to a liquid state under specified test conditions

Drum – A cylindrical container that holds 55 gallons (208 liters) of oil. There are also half-size drums that hold 30 gallons (113.5 liters) of oil.

Emissions - Term used generically to refer to the various components of the engine's exhaust.

Emulsibility - The ability of a non-water-soluble fluid to form an emulsion with water.

Emulsifier - Substance used to promote or aid the formation of a stable mixture, or emulsion of oil and water. Common emulsifiers are: metallic soaps, certain animal and vegetable oils, and various polar compounds.

Emulsion - Mixture of two liquids, which are not soluble with each other, such as oil and water.

Engine Deposits - Hard or persistent accumulation of sludge, varnish and carbonaceous residues due to blow-by of unburned and partially burned fuel, or the partial breakdown of the crankcase lubricant. Water from the condensation of combustion products, glycol, carbon, residues from fuel or lubricating oil additives, dust and metal particles also contribute.

EMA (Engine Manufacturers Association) www.enginemanufacturers.org
Based in Chicago, Illinois, the EMA is a non-profit trade association composed of domestic and international engine manufacturers interested in public policy, regulatory and technical issues affecting the industry.

Ethylene Glycol - A colorless, syrupy liquid, used as an antifreeze in cooling and heating systems.

EGR (Exhaust Gas Recirculation) Valve - System to reduce automotive emission of nitrogen oxides (Nox). It routes exhaust gases into the intake manifold where they dilute the air/fuel mixture and reduce peak combustion temperatures, thereby reducing the tendency for Nox to form.

EP (Extreme Pressure) - Lubrication regime where surfaces are sliding against each other under heavy load. The expression was coined for the condition present in hypoid gears in automotive rear axles. An extreme-pressure additive lubricant allows these rubbing surfaces to carry greater loads than would be possible with ordinary lubricants. An EP additive prevents sliding metal surfaces from seizing under conditions of extreme pressure. At the high local temperatures associated with metal-to-metal contact, an EP additive combines chemically with the metal to form a surface film that prevents the welding of opposing asperities, and the consequent scoring that is destructive to sliding surfaces under high loads. Reactive compounds of sulfur, chlorine, or phosphorus are used to form these inorganic films.

EP (Extreme Pressure) Lubricant - One that imparts to rubbing surfaces the ability to carry greater loads that would be possible with an ordinary lubricant without excessive wear or damage.

Evaporation Loss - The loss of a portion of a lubricant due to volatilization.

Filler - A term normally used to denote something non-chemical added to oil or grease. For example, molybdenum disulfide (also referred to as moly), graphite and zinc oxide are commonly used fillers.

Film Strength - The ability of a lubricant film to withstand the effects of speed, temperature and load without breaking down.

Fire / Flash Point (Cleveland Open Cup Test) - The temperature to which a combustible liquid must be heated to ignite and burn, for at least five seconds, a flammable mixture with air when a small flame is applied under specified conditions (ASTM D-92).

Foam - An agglomeration of gas bubbles separated from each other by a thin liquid film. If an oil is said to not foam, the small air bubbles will quickly combine, become larger bubbles, and then break to vent to the atmosphere. If this action occurs slowly, the oil is said to foam.

Foam Test / Sequence - Foaming tendency measurements must fit within certain guidelines for a set time of aeration followed by a settling time, after which no foam can be observed (ASTM D-1881).

Four Ball Test - Machine used to evaluate a lubricant's antiwear qualities, frictional characteristics, or load-carrying capabilities. There are four steel-inch balls. Three of the balls are clamped together in a cup filled with lubricant while the fourth ball is rotated against them. Two test procedures are based on this same principle: the Four Ball EP Test (ASTM D-2596) and Four Ball Wear Test (ASTM D-2266).

Friction - Resistance to motion of one object over another. Friction depends on the smoothness of the contacting surfaces, as well as the force with which they are pressed together.

Fuel Dilution - The amount of unburned fuel present in a lubricant. This test will indicate problems such as fuel line, injector, carburetor and pump leaks. Fuel dilution is accurate down to less than 0.5%.

Gearlube – AGCO® brand of single-grade straight mineral oil gear lubricant.

Gear Oil - A high-quality oil with good oxidation stability, load-carrying capacity, rust protection, and resistance to foaming, for service in gear housings and enclosed chain drives. Specially formulated industrial EP gear oils are used where highly loaded gear sets or excessive sliding action (as in worm gears) is encountered.

Gelation Index - Gelation Index is a measure of the severity of engine oil gelation, or solidification, at lower temperatures. The higher the Gelation Index, the more severe the oil's tendency to cause air-binding in the engine. Gelation, or Gel, Index values are derived by analysis of the viscosity-temperature curves produced by the Scanning Brookfield test method, ASTM D-5133. Both the Scanning Brookfield and Gelation Index are required tests for passenger car engine oils (ILSAC GF-2, GF-3 and GF-4) as a measurement of an oil's pumpability after slow cooling.

Grease - A lubricant composed of an oil or oils thickened with a soap, soaps or other thickener to a semisolid or solid consistency.

Hydraulic Fluid - Fluid serving as the power transmission medium in a hydraulic system. The most commonly used fluids are petroleum oils, synthetic lubricants, oil-water emulsions, and water-glycol mixtures. The principal requirements of a premium hydraulic fluid are proper viscosity, high viscosity index, antiwear protection (if needed), good oxidation stability, adequate pour point, good demulsibility, rust inhibition, resistance to foaming, and compatibility with seal materials. Antiwear oils are frequently used in compact, high-pressure, and capacity pumps that require extra lubrication protection.

Hypoid Gear Lubricant - A gear lubricant with extreme pressure characteristics; for use in hypoid-type gears (as in the differential of an automobile).

Inhibitor - Additive that improves the performance of a petroleum product by controlling undesirable chemical reactions; for example, oxidation or rust inhibitor.

ILSAC (International Lubricant Standardization and Approval Committee) - A joint committee of AAMA (American Automobile Manufacturers Association) and JAMA (Japan Automobile Manufacturers Association Inc.) members that assists in the development of new minimum oil performance standards.

ISO (International Organization for Standardization) - www.iso.org
ISO is a leading global developer of international standards for products, services, processes, materials and systems, and for good conformity assessment, managerial and organizational practice. A federation of nearly 150 countries, each ISO member is the principal standards organization in its country. Responsible for the ISO 9000 and other international quality standards including viscosity reference scales.

Lithium Grease - The most common type of grease today, based on lithium soaps.

Load-Carrying Capacity - Property of a lubricant to form a film on the lubricated surface, which resists rupture under given load conditions. Expressed as the maximum load the lubricated system can support without failure or excessive wear.

Lubrication - Control of friction and wear by the introduction of a friction-reducing film between moving surfaces in contact. May be a fluid, solid or plastic substance.

Lubricity - Ability of an oil or grease to lubricate; also called film strength.

MSDS (Material Safety Data Sheet) - Designed to give workers and emergency personnel the proper procedures for handling or working with any given substance. A typical MSDS sheet includes information such as physical data (melting point, flash point, boiling point), toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill/leak procedures. MSDS sheets are intended for employees and employers who may be handling a given product, or for emergency personnel. They are not meant for consumers.

MSDS information for AGCO® products can be found on OneAGCO:

Dealer InfoNet>Parts>Parts Documents By Brand>(Brand)>Parts>Hazardous Materials

You can then select from the following categories: Miscellaneous; Oil Products; Paint.

MSDS sheets are listed by AGCO Part Number.

There is also information for Canada CCCR (Hazardous Products List).

Moly - Shortened version of Molybdenum Disulfide, a solid lubricant and friction reducer, which is colloiddally dispersed in some oils and greases.

Molybdenum Disulfide - A black, lustrous powder (MoS_2) that serves as a dry-film lubricant in certain high-temperature and high-vacuum applications. It is also used in the form of pastes to prevent scoring when assembling press-fit parts, and as an additive to impart residual lubrication properties to oils and greases. Molybdenum Disulfide is often called Moly or Moly sulfide.

Multi-Viscosity / Multigrade Oil - Engine or gear oil that meets the requirements of more than one SAE viscosity grade classification, and can be used over a wider temperature range than a single grade oil.

Multiguard[®] - (also **Powerlube Multiguard[®]**) AGCO[®] brand, and registered trademark, for its super-premium engine oil.

NLGI (National Lubricating Grease Institute) www.nlgi.com
International trade association serving the lubricating grease and gear lubricant industry, best known for its published industry standards for greases.

NLGI Grade Number - Numbers assigned by the NLGI to classify greases according to their hardness as measured by a cone penetration test. The numbers range from 000 (very fluid) to 6 (solid).

Grease Classification – NLGI Grades

NLGI Grade	Worked Penetration After 60 Strokes @ 25° C (0.1mm)	Appearance
000	445 - 475	Fluid
00	400 - 430	Fluid
0	355 - 385	Very Soft
1	310 - 340	Soft
2	265 - 295	Moderately Soft
3	220 - 250	Semi-Fluid
4	175 - 205	Semi-Hard
5	130 - 160	Hard
6	85 - 115	Very Hard

Nitration - Process where nitrogen oxides attack petroleum fluids at high temperatures, often resulting in viscosity increase and deposit formation. Nitration only occurs in applications where fuel is used

Nox - Shortened version of nitrogen oxide, which is released in automotive emissions.

Oxidation - Occurs when oxygen attacks fluids. The process is accelerated by heat, light, metal catalysts and the presence of water, acids, or solid contaminants. It leads to increased viscosity and deposit formation.

Oxidation Inhibitor - Substance added in small quantities to a petroleum product to increase its oxidation resistance, thereby lengthening its service or storage life; also called antioxidant. An oxidation inhibitor may work in one of three ways: (1) by combining with and modifying peroxides (initial oxidation products) to render them harmless, (2) by decomposing the peroxides, or (3) by rendering an oxidation catalyst inert.

Oxidation Stability - Resistance of an oil product to oxidation (contact with oxygen) and, therefore, a measure of its potential service or storage life.

Penetration, Cone - A test in which a cone is dropped into a grease sample to measure the penetration or how hard or soft the grease is at room temperatures. The cone penetrates farther in a soft grease and, therefore, has a higher penetration number. This penetration relates to an NLGI number. A number 0 grease is called an NLGI 0 grade and will be softer than an NLGI 1 or 2 grade (ASTM D-217).

Permatran® (also **Permatran® 821XL**)
AGCO® brand, and registered trademark, for its premium brand of transmission and hydraulic oils.

Pitting - Surface cavities; their formation may be related to fatigue, overload or corrosion.

Poise (Absolute Viscosity) - A measure of viscosity numerically equal to the force required to move a plane surface of one square centimeter per second when the surfaces are separated by a layer of fluid one centimeter in thickness. It is the ratio of the shearing stress to the shear rate of a fluid and is expressed in dyne seconds per square centimeter (DYNE SEC/CM²); 1 centipoise equals 0.01 poise. This viscosity is independent of fluid density, and directly related to flow resistance.

PCV (Positive Crankcase Ventilation) Valve - An emissions control device that allows gases from the crankcase to be reintroduced into the intake.

Pour Point - The lowest temperature at which an oil will flow. This property is crucial for oils that must flow at low temperatures. Rule of thumb: Make certain the pour point of an oil is at least 10° C / 20° lower than the lowest anticipated ambient (air) temperature.

Pour Point Depressant - Additive used to lower the pour point or lower the temperature fluidity of a petroleum product.

Powerfluid – AGCO® brand of Automatic Transmission Fluid.

Powerlube - (full name: **Powerlube Multiguard**[®])
AGCO[®] brand of super-premium engine oil.

pH - A measure of acidity or alkalinity. Values of pH run from 0 to 14; 7 indicates neutrality, numbers less than 7 indicate increasing acidity, and numbers greater than 7 indicate increasing alkalinity.

Preferred 55[®] - AGCO[®] brand, and registered trademark, of Hydraulic Oil; specified for White[™] and Oliver[®] applications.

Promo 105 - The AGCO[®] Parts program number for Oils and Lubricants. Promo, short for promotion, or program, literally allows AGCO[®] Parts to track orders for its products, including sales and special discounts/terms where applicable. A Promo number can apply to products that are direct-ship from the supplier as well as those from the PDC.

Propylene Glycol - A non-toxic liquid used as a coolant/antifreeze in cooling and heating systems.

Pumpability - The low temperature, low shear stress-shear rate viscosity characteristics of an oil that permit satisfactory flow to and from the engine oil pump and subsequent lubrication of moving components.

Rust - Slow oxidation of iron.

Rust Inhibitor - A type of corrosion inhibitor used in lubricants to protect surfaces against rusting.

Rust Preventative - Compound for coating iron surfaces with a film that protects against rust. Commonly used to preserve equipment in storage.

Rust Prevention Test (Turbine Oils) - A test for determining the ability of an oil to aid in preventing the rusting of ferrous parts in the presence of water (ASTM D-1743).

Saybolt, Saybolt Universal Seconds, SUS, or SSU - The most common viscosity measurement prior to the international acceptance of centistokes, SUS measurements are now obsolete. To convert measurements from SUS at 100° F to an approximate value in cSt at 40° C (ISO viscosity grade), divide the SUS value by 5.

Saybolt Universal Viscosity (SUV) or Saybolt Universal Seconds (SUS) - The time in seconds required for 60 cubic centimeters of a fluid to flow through the orifice of the Standard Saybolt Universal Viscometer at a given temperature under specified conditions (ASTM D-88).

Scoring - Scratches on mechanical parts in the direction of motion caused by abrasive contaminants.

Scuffing - Abnormal engine wear due to localized welding and fracture. It can be prevented through the use of antiwear, extreme-pressure and friction-modifier additives.

Shear / Kurt Orbahn Shear Stability EOT (Engine Oil Test) - Test of how much viscosity is lost to shear (the permanent loss of viscosity to tight interfaces in the engine, piston-to-liner, piston rings in motion), which leads to decreased film strength, increased wear and increased oil consumption.

Shear Stability - Ability of a lubricant to withstand shearing forces without being degraded to lower viscosity or consistency.

Shearing - Relative slipping or sliding between one part of a substance and an adjacent part.

Sludge - A thick, dark residue, normally of mayonnaise consistency, that accumulates on nonmoving engine interior surfaces. Generally removable by wiping unless baked into a carbonaceous consistency; its formation is associated with insolubles overloading the lubricant.

SAE (Society of Automotive Engineers) www.sae.org

An organization serving the automotive industry; also responsible for setting standards.

SAE Grade - Numbers applied to automotive lubricants to indicate their viscosity range.

Solid - Any substance having definite shape that it does not readily relinquish to a liquid. More generally, any substance in which the force required to produce a deformation depends upon the magnitude of the deformation rather than the rate of deformation.

Stoke (St) - Kinematic measurement of a fluid's resistance to flow defined by the ratio of the fluid's dynamic viscosity to density.

Synthetic Lubricant - Fluid made by chemically reacting materials to produce a lube with a specific chemical composition, which has planned and predictable properties.

Thermally Stable - Able to withstand temperatures without decomposing. Not to be confused with oxidation stability, where oxygen must be present and oxidation rather than decomposition.

Thickener - The metallic soap or other material used in combination with oil or another lubricating fluid to make a grease.

Timken EP Test - Measure of the extreme-pressure properties of a lubricating oil. The test utilizes a Timken machine, which consists of a stationary block pushed upward, by means of a lever arm system, against the rotating outer race of a roller bearing, which is lubricated by the product under test. The test continues under increasing load (pressure) until a measurable wear scar is formed on the block.

Timken OK Load - The heaviest load that a test lubricant will sustain without scoring the test block in the Timken Test procedures, ASTM D-2509 (greases) and D-2782 (oils).

Total Acid Number (TAN) - The quantity of acid, expressed in terms of the number of milligrams that is required to neutralize all basic constituents present in a one-gram sample.

Total Base Number (TBN) - The quantity of acid, expressed in terms of the equivalent number of milligrams of potassium hydroxide that is required to neutralize all basic constituents present in 1 gram of sample (ASTM D-974).

Total Solids - The total amount of solids' contamination, both suspended and non-suspended, present in the lubricant. This test is indicative of carburetion problems (too rich or too lean), if the oil filter has reached the saturation point and is no longer able to remove contamination from the system, and if the air intake system is functioning properly and allowing enough air into the unit for complete burn to take place.

Viscosity - Measure of the resistance of a fluid to deform under shear stress, commonly perceived as 'thickness', or resistance to pouring. Viscosity describes a fluid's internal resistance to flow and may be thought of as a measure of fluid friction. The common metric unit of absolute viscosity is the poise, which is defined as the force in dynes required to move a surface one square centimeter in area past a parallel surface at a speed of one centimeter per second, with the surfaces separated by a fluid film one centimeter thick. In addition to kinematic viscosity, there are other methods for determining viscosity, including Saybolt Universal viscosity (SUV), Saybolt Furol viscosity, Engier viscosity, and Redwood viscosity. Since viscosity varies inversely with temperature, its value is meaningless until the temperature at which it is determined is reported.

Viscosity, Absolute - The product of kinematic viscosity and density; A fluid's internal resistance to flow. The common unit of measurement is the poise and centiPoise (cP). It is measured by a rotary viscometer; viscometers used include: Cold Crank Simulator (CCS); mini rotary viscometer (MRV); Brookfield viscometer; and tapered bearing simulator. In relation to oils for Automotive applications such as motor oil or gear oil, the CCS and MRV test equipment at low temperatures is used to determine if the test lubricant does not get too thick to prevent safe engine or transmission operation at low temperatures.

If motor oil is too viscous to flow, even if the engine can be started, certain mechanical damage will result due to localized oil starvation. In both manual and automatic transmissions, proper shifting may be impaired, affecting safe vehicle operation once the vehicle is put in motion

Viscosity, Apparent - A measure of the viscosity of a non-Newtonian fluid (such as lubricating grease, or a multigrade oil) under specified temperature and shear. Viscosity is expressed in units of centipoise (cP). The apparent viscosity changes with changing rates of shear and temperature and must, therefore, be reported as the value at a given shear rate and temperature (ASTM D-1092).

Viscosity, Cold Crank Simulator Test - Measurement of oil viscosity at -15° C to evaluate an oil's fluidity in cold temperatures. Fluid oil helps engines start easier and lubricates them faster than does cold-thickened oil. Maximum allowable viscosity for SAE 15W-40 oils in the Cold Crank Simulator Test is 3500 cP. The lower the viscosity, the better the oil's cold temperature starting characteristics (ASTM D-2602).

Viscosity, Dynamic - Viscosity of a liquid as measured in a rotational instrument as distinct from Kinematic Viscosity, where the liquid falls through a capillary tube under its own weight.

Viscosity, HTHS (High Temperature High Shear) - The viscosity of an engine oil under conditions of high shear at a temperature of 150° C. Using a viscometer, pressurized gas is used to force an oil sample through a capillary maintained at 150° C \pm 0.1° C to obtain the required shear rate (normally 106 seconds).

Viscosity, Kinematic - The absolute viscosity divided by the density of the fluid; usually expressed in centiStokes (cSt). Technically, the measure of a fluid's resistance to flow under gravity at a specific temperature (40° C or 100° C).

Viscosity, SUS - Saybolt Universal Seconds (SUS), which is the time in seconds for 60 milliliters of oil to flow through a standard orifice at a given temperature.

Viscosity, SAE - The viscosity classification of motor oil according to the system developed by the Society of Automotive Engineers and now in general use. 'Winter' grades are defined by viscosity measurements at low temperatures and have 'W' as a suffix, while 'Summer' grades are defined by viscosity at 100° C and have no suffix. Multigrade oils meet both a winter and a summer definition and have a designation such as SAE 10W-30.

Viscosity Grade - Any of a number of systems which characterize lubricants according to viscosity for particular applications, such as industrial oils, gear oils, automotive engine oils, automotive gear oils, and aircraft piston engine oils. Lower numbers indicate thinner oil and higher numbers indicate thicker oil. There are two types of motor oils: single grade and multigrade. Multigrade oil such as an SAE 10W-30 is designed to have the viscosity of an SAE 10W oil at cold temperatures combined with the viscosity of an SAE 30 oil at engine operating temperatures. The 'W' or 'Winter' designation indicates that the oil meets viscosity requirements for low temperatures (below 30° F).

Viscosity Index (VI) - A commonly used measure of a fluid's change of viscosity with temperature. The higher the Viscosity Index, the smaller the relative change in viscosity with temperature. High Viscosity Index fluids tend to display less change in viscosity with temperature than do low Viscosity Index fluids.

Viscosity Index Improver (VII) - Additive that increases the viscosity of the fluid throughout its useful temperature range. Such an additive is a polymer that possesses thickening power as a result of its high molecular weight and is necessary for formulating a multigrade engine oil. Since a VII increases the Viscosity as well as the Viscosity Index, it must be taken into consideration when formulating oil. While a VII can improve the VI, it can break down under shear or over time, resulting in diminished performance. Example: An SAE 30 oil, with the addition of a VII, could become more like an SAE 40 oil.

Viscosity Modifier - A lubricant additive, usually a high molecular weight polymer, that reduces the tendency of an oil's viscosity to change with temperature.

Viscosity-Temperature Relationship - The manner in which the viscosity of a given fluid varies inversely with temperature. Because of the mathematical relationship that exists between these two variables (viscosity and temperature), it is possible to predict graphically the viscosity of a petroleum fluid at any temperature within a limited range if the viscosities at two other temperatures are known. The charts used for this purpose are the ASTM Standard Viscosity-Temperature Charts for Liquid Petroleum Products, available in six ranges. If two known viscosity-temperature points of a fluid are located on the chart and a straight line is drawn through them, other viscosity-temperature values of the fluid will fall on this line. However, values near or below the cloud point of the oil may deviate from the straight-line relationship.

Volatility, Noack - The Noack Volatility Test is used to determine evaporation loss of lubricating oils, an issue of particular importance in engine lubrication. Portions of an oil can evaporate under high temperature conditions, potentially altering oil properties such as viscosity. A low Noack score indicates the oil will maintain its original protective and performance qualities for a longer amount of time. A low Noack volatility oil will perform better under heat, translating to better engine protection, longer oil life, and improved fuel economy.

Warren Distribution www.wd-wpp.com

AGCO® approved supplier for oils and lubricant products since 1999. Based in Omaha, Nebraska, this large, privately owned independent oil company blends and packages private-label oils for major brands in the market, including retailers, the U.S. Department of Defense and leading agricultural brands including AGCO. Warren Distribution is fully licensed and approved by the American Petroleum Institute.



Wear - Damage resulting from the removal of materials from surfaces in relative motion.

Zinc (ZDDP) - Commonly used name for zinc dithiophosphate, an antiwear/oxidation inhibitor chemical.

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