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Quality Since 1903...

Helping you operate more profitably :

Lubricants represent an extremely small percentage of your operating expenses. Yet they can dramatically affect overall equipment performance as well as bottom-line profits.

At AMALIE OIL COMPANY our motor oils, greases, and other lubricant products are designed with today's most advanced chemistry and manufacturing technology to give you the best performance edge. In heavy-use and extreme temperature conditions Amalie products perform better and help your costly equipment last longer.

For fleet and construction use, Amalie XLO and Super XLO Motor Oils, combined with the Amalie Lubricant Analysis System (ALAS), enable you to extend drain intervals. The result-your most expensive assets stay in the field or on the road longer, rather than sitting in the shop. Routine maintenance costs go down while your return on investment increases. And, the working life of your equipment is greatly extended.

Technical support when you need it :

When you use Amalie products you have access to the most responsive technical support services anywhere. Your local Amalie brand supplier or distributor can help you determine the best lubrication product for your specific application.

Our engineers are always available to help you solve the toughest problems. If necessary, we'll come to you to make sure you get the answers you need. To have your questions answered call our TECHNICAL SERVICES HOT LINE 1-800-368-1264. It's all part of Amalie Motor Oil customer service that goes beyond the ordinary.

Let us prove it to you :

We're anxious to earn your business and show you the measurable difference Amalie products can make in the financial performance of your operation.

To find out more about the ways we can help you, talk with your local Amalie brand distributor. Or, call 1-813-248-1988 - and let us prove to you why Amalie products offer you the best lubricant value available in today's competitive market.



Official Oil of the IHRA

Elixir Synthetic

Pro High Performance Synthetic Blend

It is a partial synthetic motor oil that exceeds API SJ/CF performance in various viscosity grades (below). It will satisfy the stringent performance requirements of most domestic and imported passenger cars, including Porsche, BMW and Volkswagen.

Imperial

Imperial 5W-30 and 10W-30 are fuel-efficient oils and thus satisfy ILSAC GF-2 and the accompanying certification mark referred to as the "Starburst".

Typical Inspection Data

	Elixir	Pro High Performance Synthetic Blend						Imperial			
SAE Grade	5W-50	50	70	5W-30	10W-30	10W-50	20W-50	5W-30	10W-30	10W-40	20W-50
Part No.	6166	6098	6099	6091	6092	6094	6096	6147	6148	6146	6149
API Gravity	34.0	27.5	26.6	30.9	30.3	30.2	28.6	30.5	30.1	29.9	28.9
Flash Point C°,(D92)	215	230	235	205	210	220	235	214	220	220	230
Viscosity, cSt @40 C° @100 C°	118.6	181.6	348.0	60.3	70.7	137.9	161.4	63	71.0	102.0	158.0
	17.6	17.8	27.8	10.3	10.5	17.8	17.5	10.5	10.4	14.1	17.5
Viscosity Index	170	108	107	158	136	144	120	154	132	139	122
Pour Point, C°	-40	-12	-9	-35	-35	-30	-24	-38	-32	-32	-18

For OEM Specifications Please Refer to the Chart on Page 6





Heavy Duty

A popular line of single-graded passenger car motor oils meeting the latest API SJ requirements. Suitable for both domestic and imported passenger vehicles and light trucks not requiring multigrade viscosity characteristics. May be used in turbocharged engines. The formulations contain a combination of high viscosity index base stocks and additives to provide thermal and oxidation stability, deposit control, anti-wear properties, corrosion protection and improved pumpability.



Non-Detergent Motor Oil

This is a quality line of straight mineral crankcase oils of differing viscosity grades. By definition, these oils are without additive treatment. Not recommended for modern high performance engines. Meets API SA in the SAE straight grades identified below.

Typical Inspection Data

	Heavy Duty			Non-Detergent		
SAE Grade	30	40	50	30	40	50
Part No.	6123	6124	6125	6013	6014	6015
API Gravity	28.5	27.0	26.5	23.2	21.8	20.6
Flash Point C°, (D92)	210	216	221	220	230	240
Viscosity, cSt @40 C° @100 C°	101.0 11.8	145.0 14.6	197.0 18.0	- 10.1	- 13.5	- 17.4
Viscosity Index	105	100	100	-	-	-
Pour Point, C°	-20	-13	-10	-12	-10	-8

For OEM Specifications Please Refer to the Performance Chart Below.

Specifications	Elixir Synthetic	Pro High Performance	Imperial	Heavy Duty
API				
SJ	x	x	x	x
SH	x	x	x	x
CF	x	x	---	---
ACEA				
A1/2/3	x	x	A1/2	A1/2
B1/2/3	x	x	B1/2	B1/2
Ford				
M2C153-F	x	x	x	x
GM				
6094-M	x	x	x	x
DaimlerChrysler				
MS 6395G	x	x	x	x
Volkswagen	x	x	x	x
Mercedes-Benz				
226, 227	x	x	x	x
229.0/1	x	---	---	---
BMW M44	x	x	---	---
ILSAC				
GF-1	---	5W-30, 10W-30	5W-30,10W-30	---
GF-2	---	5W-30, 10W-30	5W-30, 10W-30	---
CID A-A 52039	x	x	x	x
Mil-L-46152	x	x	x	x



Diesel Engine Oils

Super XLO

Formulated with premium hydrocracked base stocks and a robust additive system that protect both diesel and gasoline engines against rust, corrosion, varnish and various deposits. Excellent soot-controlling properties. Recommended for both on-highway and off-highway, including construction, mining, marine, forestry and stationary power generation. The use in propane and compressed natural gas engines is also recommended. Super XLO offers extended service interval (ESI) performance, and should be accompanied with Amalie's ALAS oil sample service. The TBN (total base number) is 13, which adds to improved engine performance and durability; this level of alkalinity is among the market's highest in on-highway applications.

Super XLO is a preeminent long-life lubricant available for your heavy duty diesel equipment, and is formulated to provide improved engine durability and performance.

Super XLO offers real savings over time because of its more robust additive/base oil/VI improver formulation; this permits extended service intervals and less engine down time, with improved engine operation.



XLO

Amalie XLO oils are blends of hydrocracked base stocks, petrochemical additives and viscosity index improvers (multi-grades). These oils are recommended in both diesel and gasoline engines.They protect against corrosion, varnish development, carbon deposits, and engine soot. The outstanding characteristics of XLO have long been established and include a TBN of 11.4.

Recommended in both on-highway and off-highway application, including construction, mining, marine, and stationary power generation.

This line of products meet various specifications and industry classifications as tabulated on the performance chart on page 8.



Typical Inspection Data

	Super XLO	XLO					
SAE Grade	15W-40	10W	30	40	50	10W-30	15W-40
Part No.	6178	6171	6173	6174	6175	6177	6176
API Gravity	27.7	28.0	26.5	26.4	25.4	28.7	29.1
Flash Point C°, (D92)	220	210	220	230	240	210	220
Viscosity, cSt @40 C° @100 C°	121.0 14.8	45.0 7.1	104.0 11.8	158.0 15.6	231.0 20.0	75.0 10.5	115.0 14.4
Viscosity Index	126	110	102	100	100	127	127
Pour Point, C°	-25	-21	-18	-15	-12	-35	-25
TBN,(D-2896)	13	11.4	11.4	11.4	11.4	11.4	11.4

For OEM Specifications Please Refer to the Chart on Page 8



Two-Cycle Oils

Heavy Duty Diesel Engine Oil Performance Chart

Specifications	Super XLO 15W-40	XLO 15W-40	XLO 10W-30	XLO 10W	XLO 30	XLO 40	XLO 50
API							
CH-4	x	x	x	---	---	---	---
CG-4/CF-4	x	x	x	---	---	---	---
CF	x	x	x	x	x	x	x
CF-2	---	---	---	x	x	x	x
*SJ/SH	x	x	x	x	x	x	x
Mil-PRF-2104G (A-A-52306)	x	x	x	x	x	x	x
Allison C-4	x	x	x	x	x	x	---
Caterpillar TO-2	x	x	x	x	x	x	x
Mack EO-M Plus	x	x	x	---	---	---	---
Navistar	x	x	x	---	x	---	---
Caterpillar	x	x	x	---	---	---	---
Detroit Diesel	x	x	x	x	x	x	x
Cummins							
CES 20071	x	x	x	---	---	---	---
CES 20072	x	---	---	---	---	---	---
CES 20076	x	x	x	---	---	---	---
Volvo							
VDS	x	x	x	x	x	x	x
VDS-2	x	---	---	---	---	---	---
MTU							
Type I	x	x	x	x	x	x	x
Type II	x	---	---	---	---	---	---
Mercedes-Benz							
228.0/1	x	x	x	x	x	x	x
228.2/3	x	---	---	---	---	---	---
M.A.N.							
270/271	x	x	x	x	x	x	x
3275	x	---	---	---	---	---	---
ACEA							
A1,A2,A3	x	x	x	x	x	x	x
B1,B2,B3	x	x	x	x	x	x	x
E1,E2,E3	x	E1, E2	E1, E2	E1, E2	E1, E2	E1, E2	E1, E2

*Above phosphorus level of SJ (10W-30) For assistance please call 1-800-368-1264

2-Cycle & Small 4-Cycle Performance Chart

Specifications	Pro 2-Cycle	Synplus 2T	Two Cycle
TC-W3 (NMMA)	x	---	---
API			
TA	x	x	x
TB	x	x	---
TC	x	x	---
JASO			
FA	x	x	x
FB	x	x	---
FC	---	x	---
ISO			
GB	x	x	---

For Assistance Please Call 1-800-368-1264

Synplus 2T Small Engine Oil

A semi-synthetic lubricant formulated for air-cooled two cycle engines and smaller (under 15 BHP) four-cycle engines found in motorcycle application. Contains low-ash high-temperature performance chemistry supplemented with smoke reducing components. Recommended for motorcycles, chain saws, all-terrain vehicles, snow blowers, lawn mowers, mopeds, scooters and some snowmobiles. This lubricant meets API TC, JASO FC and ISO GC.

Fuel to Oil mixing ratios for air -cooled two cycle engines may vary from 8:1 through 50:1; refer to the owners manual for their recommended fuel/oil mixture.

Use Amalie Pro Two-Cycle (TC-W3 approved) in water-cooled outboards for large output engines, and personal watercraft of all makes.



Pro Two-Cycle (TC-W3 Oil)

This is TC-W3 ashless certified oil for water-cooled engines of all displacements. Pro Two-Cycle is an ashless formulation that may be used in other air-cooled and water-cooled applications, such as snowmobiles, watercraft (jet skis), lawn mowers, snow blowers, all-terrain vehicles, etc. Recommended in equipment that requires oil injection or fuel/oil mixing. Meets API TC, JASO FB and ISO GB and the National Marine Manufacturers Association (NMMA) TC-W3 performance level for high-output water-cooled engines. The NMMA was formerly known as BIA (Boating Industry Association).

The fuel to oil ratio of water-cooled engines requiring TC-W3 lubricants ranges from 25:1 to 100:1; consult your owners manual for specific fuel/oil mixtures.



Two Cycle

A low-ash two-cycle oil designed to give satisfactory small engine operation where optimum TC-W3 or JASO FC performance is not required.

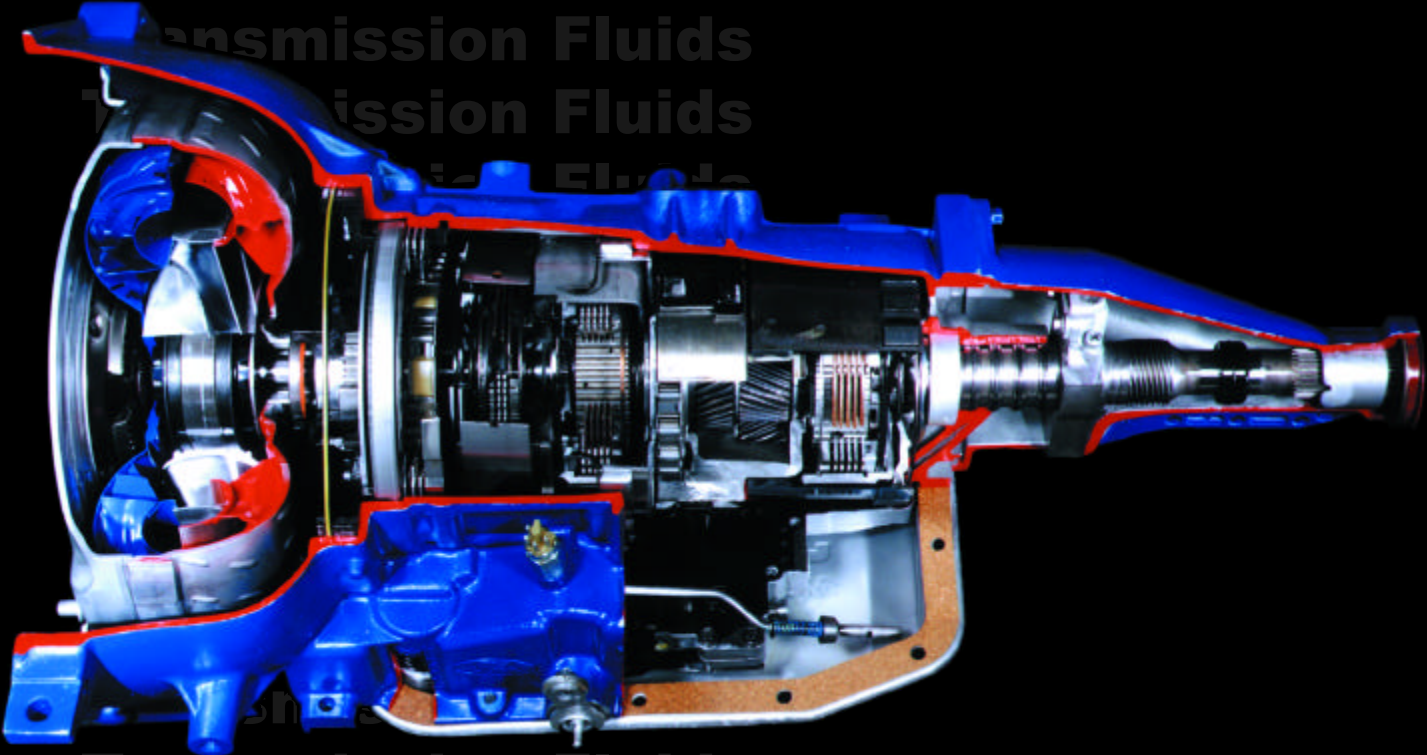


Typical Inspection Data

	Synplus 2T	TC-W3	Two Cycle
SAE Grade	20W-20	N/A	30
Part No.	6297	6256	6293
API Gravity	32.0	30.7	28.0
Flash Point C°, (D92)	107	98	210
Viscosity, cSt @40 C°	52	40	105
@100 C°	8.3	7.0	11.9
Viscosity Index	133	120	100
Pour Point, C°	-21	-34	-18
% Weight Ash	0.08	0	0

For OEM Specifications Please Refer to the Chart on Opposite Page.

Transmission Fluids



Dexron III / Mercon

A premium automatic transmission fluid formulated with high V.I. (viscosity index) base stocks and a superior additive system. This is truly a multi-purpose fluid for most domestic and imported automobiles, trucks and buses. General Motors [DEXRON ®] and Ford [MERCON ®] approve it as a certified automatic transmission fluid for their transmissions. It is also listed by Allison under their C-4 heavy-duty transmission specification and may be used in many other on-highway and off-highway transmissions, power steering units and hydraulic systems. Acceptable for Caterpillar TO-2 power shift transmission specification. Meets Denison HF-O, HF-2 and HF-1 requirements, Vickers M-2950-S mobile hydraulic specification and Voith transmissions .



Type 7176E Fluid

This is an improved fluid over former Chrysler "Type 7176" ATF and is formulated with hydrocracked base stocks, shear stable viscosity index improvers, and a potent additive package; the ultimate transmission performance should show significant improvement in shifting characteristics and lower shudder occurrence.

Amalie 7176E Fluid is recommended for all Chrysler transmissions, even older models, specifying DEXRON ® III, MERCON ®, or obsolete Chrysler 7176D (ATF+2) specification. The 7176E specification is also referred to as "ATF+3".



Amatran Powershift

Amatran Powershift Transmission Fluid is an efficient transmission oil designed to meet the requirements of Caterpillar TO-4 specification.

Formulated to provide maximum wear protection even under heavily loaded gearing systems. Superior oxidation stability, rust control and elastomer compatibility are formulated to provide extended component life.

Also meets Allison C-4 requirements in the SAE 10W and SAE 30 grades.

Will also satisfy the Diesel Engine performance requirements of API CF & CF-2.



Typical Inspection Data

	DexronIII/Mercon	Type 7176E	Amatran Powershift		
SAE Grade(Approx.)	5W-20	5W-20	10W	30	50
Part No.	6424	6418	6371	6373	6375
API Gravity	31.2	34.6	29.6	28.7	26.7
Flash Point C°, (D92)	190	180	210	220	230
Viscosity, cSt @40 C°	31.8	34.7	40.7	95.4	209
@100 C°	7.1	7.54	6.3	10.9	17.7
Viscosity Index	180	192	103	100	98
Pour Point, C°	-50	-40	-28	-18	-10

For OEM Specifications Please Refer to the Chart on Page 13



Type F ATF

Amalie Type F fluid is formulated with an additive system designed to give a high static coefficient of friction; this is a “grabby” feel during shift of gears.

This type of performance is defined by Ford specification M2C33-F, which is obsolete for the newer Ford transmissions. There are many “Rebuild” shops who still recommend the use of Ford ATF for rebuilt automatic transmissions.



Synthetic Manual

A fully synthetic formulation meeting API GL-1. Recommended for use in manual transmissions that call for GL-1 performance. Approved by Eaton for Extended Drain Service of 500,000 miles in equipment specified by Eaton/Fuller. Listed by Eaton (Roadranger)/Fuller as an approved lubricant for their transmissions.



800 Manual

Recommended for use in multiple-speed manual transmissions typically used in on-highway applications, such as Fuller, Clark, and Spicer. May be used in applications that call for API GL-1 level of performance.

Typical Inspection Data

	Type F ATF	Synthetic Manual	800 Manual
SAE Grade(Approx.)	5W-20	50	80W-90
Part No.	6423	6783	6426
API Gravity	31.5	23	29.9
Flash Point C°(D92)	177	220	230
Viscosity, cSt @40 C°	35.8	138	146
@100 C°	7.4	18.2	14.9
Viscosity Index	165	152	101
Pour Point, C°	-45	-40	-27

For OEM Specifications Please Refer to the Performance Chart Below.

Transmission Fluids Performance Chart

Specifications	Dexron III/ Mercon	Chrysler 7176E	Type F	Amatran	Synthetic Manual	800 Manual
Dexron III	x	x	---	---	---	---
Dexron II	x	x	---	---	---	---
Dexron	x	x	---	---	---	---
Mercon	x	x	---	---	---	---
Chrysler 7176E(ATF + 3)	---	x	---	---	---	---
Chrysler 7176D(ATF + 2)	x	x	---	---	---	---
Allison C-4	x	x	---	x	---	---
Caterpillar TO-2	x	x	---	x	---	---
Caterpillar TO-4	---	---	---	x	---	---
GM Type A	x	x	---	x	---	---
Ford M2C33-A/B	x	x	---	---	---	---
Ford M2C138-CJ	x	x	---	---	---	---
Ford M2C116-H	x	x	---	---	---	---
Ford M2C33-C/D/F/G	---	---	x	---	---	---
API GL-1	x	x	x	x	x	x
Eaton (Fuller Division)	x	x	---	x	x	x
Eaton (Roadranger Type)	---	---	---	---	x	---
Eaton (Extended Drain)	---	---	---	---	x	---
Dana (Spicer Division)	x	x	---	x	x	x
Voith	x	---	---	---	---	---

NOTE: These recommendations apply to complete drain and re-fill; For top-off recommendations please contact an AMALIE representative or Technical Services at 1-800-368-1264

Gear Oils



Elixir Synthetic Gear Oil

A fully synthetic 75W-90 gear oil meeting the requirements of Mack GO-J Plus, API GL-5, Mil-Prf-2105E, SAE J2360, Eaton PS-163, PS-037, Rockwell 0-76-B and others.

Designed to perform over a wide range of temperatures and provide extended drain characteristics recommended by Mack and Eaton under their extended service warranty programs. As an approved gear oil under the Eaton (Roadranger) listing, 500,000 mile drain intervals are acceptable. Also works well for most racing applications



Tri-Vis Plus

Amalie's Tri-Vis Plus Gear Oil is a wide-range (80W-140) multi-graded gear lubricant meeting Mil-Prf-2105E, MT-1, API GL-5 and Mack GO-J specifications.

The viscosity properties of Tri-Vis Plus scan the viscosity needs of 80W-90 and 85W-140, thus a single oil may be used under wide operating temperatures.

This gear oil may be used to top-off limited-slip differentials. The 80W-140 gear oil configuration offers fuel economy properties.

For complete re-fill of limited-slip differentials, use Amalie Multipurpose Gear Oil LS



Multi-Purpose Gear Lubricant

Amalie Multi-Purpose Gear Lubricant has been developed to offer maximum extreme-pressure lubrication and corrosion protection of differentials and many manual transmissions of passenger cars, trucks, buses, and off-highway equipment. It meets API GL-5, Mil-Prf-2105E, MT-1, and the Mack GO-J specification.

Multi-Purpose Gear Lubricant is the most common type gear oil used in North America. The 80W-90-viscosity grade version is used in the majority of differentials, both passenger car and heavy duty.



Typical Inspection Data

	Elixir Synthetic	Tri-Vis Plus	Multi-Purpose Gear Lubricant		
SAE Grade	75W-90	80W-140	75W-90	80W-90	85W-140
Part No.	6770	6761	6740	6742	6743
API Gravity	27.0	26.3	29.9	25.7	24.2
Flash Point C°, (D92)	190	175	200	220	230
Viscosity, cSt @ 40 C°	127.8	224.0	83.4	114.5	377
@ 100 C°	17.5	26.0	14.7	14.2	25.8
Viscosity Index	155	148	180	95	92
Brookfield Viscosity (Max.), CP @ -40 C°	< 150,000	---	<150,000	---	---
@ -26 C°	---	<150,000	---	<150,000	<150,000
@ -12 C°	---	---	---	---	---
Pour Point, C°	-50	-25	-45	-30	-20

For OEM Specification Please Refer to the Chart on Page 17



Multi-Purpose Gear Oil - LS

A Hypoid Gear lubricant meeting Mil-Prf-2105E, MT-1, API GL-5 and Mack GO-J and containing additional frictional modifiers to control chatter in limited-slip (LS) differentials.

Recommended for complete drain and re-fill of limited slip differentials.



SMG Lubricant (Gear Oil)

SMG is a straight mineral gear oil fortified with ant-foam agents and pour point depressants.

Recommended where API GL-1 is requested. This product is used when the OEM specifies straight mineral oil or GL-1 performance.



Limited Slip Axle Concentrate

This is an additive supplement to treat limited-slip differentials that have a chatter problem. recommended treatment level is 8 ounces per rear axle (passenger car/light truck/SUV). For heavy duty truck axles use 24 ounces.

Typical Inspection Data

	MP Gear Oil - LS	SMG Lubricant (Gear Oil)			LS Axle Concentrate	
SAE Grade	80W-90	85W-90	140	250	---	
Part No.	6752	6713	6714	6715	6775	
API Gravity	27.0	19.2	19.4	19.8	22.3	
Flash Point C°, (D92)	220	230	240	250	---	
Viscosity, cSt @40 C°	148	---	---	---	35	
Viscosity, cSt @100 C°	14.9	14.4	25.5	46.9	---	
Viscosity Index	100	---	---	---	---	
Brookfield Viscosity (Max.), CP @ -40 C°	---	---	---	---	---	
Brookfield Viscosity (Max.), CP @ -26 C°	<150,000	---	---	---	---	
Brookfield Viscosity (Max.), CP @ -12 C°	---	---	---	---	---	
Pour Point, C°	-25	---	---	---	---	

For OEM Specification Please Refer to the Chart Below

Gear Lubricants Performance Chart

Specifications	Elixir Synthetic	Tri-Vis Plus	MP Gear	MP Gear LS	SMG	LS Concentrate	
API GL-1	x	x	x	x	x	---	
API GL-2/3	x	x	x	x	---	---	
API GL-4	x	x	x	x	---	---	
API GL-5	x	x	x	x	---	---	
Mil-Prf-2105E	x	x	x	x	---	---	
Mack GO-J	x	x	x	x	---	---	
Mack GO-J Plus	x	---	---	---	---	---	
Limited Slip: (M2C119A)	---	---	---	x	---	*See Below	
Limited Slip: (M2C154A)	---	---	---	x	---	*See Below	
Outboards & Stern Drives	x	x	x	x	---	---	

* Add 8 ounces to passenger car LS axle for noise reduction
(Add 24 ounces for heavy duty truck axles)
For assistance please call 1-800-368-1264

Hydraulic Oils



AMA Oil R&O

A superior anti-wear hydraulic fluid, meeting the performance requirements of all mobile and stationary industrial pumps (vane, gear, piston). Formulated in three ISO grades, and offering optimum protection against wear, corrosion, foaming, and oxidation.

Meets the requirements of Vickers (M-2950-S, I-286-S), Denison (HF-O), CMMCO (P-68, 69, 70) and DIN 51524. Turbine oil oxidation life, as measured by the ASTM D-943 procedure, reaches approximately 3000 hours---the industry standard is 1000 hours (minimum).



Low-Temp Hydraulic Oil

Low-Temp is a premium low temperature multi-viscosity (approx. 5W-10) anti-wear hydraulic fluid. It meets the highest quality performance requirement of various pump manufacturers and industry specifications; these include Vickers M-2950-S, Vickers I-286-S, Denison HF-O, Cincinnati Milacron P-68, P-69 and P-70.

Formulated to exhibit excellent wear protection, filterability, oxidation resistance, and anti-corrosion properties. This fluid attains a turbine oil oxidation life (D-943) of approximately 3000 hours.



All Climate 150

All Climate 150 is a quality multi-viscosity (approx. 5W-20) anti-wear hydraulic fluid formulated with a robust additive system in hydrocracked base stocks.

Recommended for heavy-duty applications in mobile and stationery pumps. Will meet the performance requirements of Vickers, Denison, Racine, Lee-Norse, Jeffrey, and CMMCO. Oxidation life (D-943) is approximately 3000 hours.



Typical Inspection Data

	AMA Oil R&O			Low-Temp	All Climate 150
ISO Grade	46	68	100	15	32/46
SAE Grade (Approx.)	20	20+	30	5W-10	5W-20
Part No.	6332	6333	6335	6350	6351
API Gravity	32	31.1	29.6	28.8	32.6
Flash Point C°, (D92)	220	228	238	150	225
Viscosity, cSt @40 C°	46.0	68.1	101.1	16	36.5
@100 C°	6.8	9.2	11.7	4.5	7.1
Viscosity Index	101	103	102	175	160
Pour Point, C°	-30	-14	-11	-45	-37

For OEM Specifications Please Refer to the Chart on Page 21





All-Weather Hydraulic Fluids

This line of anti-wear hydraulic fluids is offered in four ISO grades. They are formulated with a similar additive system and high quality hydrocracked base stocks. This combination will offer optimum oxidation life, with good anti-wear properties and rust protection.

These oils will meet the performance demands of Vickers, (M-2950-S, I-286-S), Denison (HF-O), CMMCO (P-68, 69, 70), and DIN 51524). The use of premium base stocks and robust additives allow this product line to reach an oxidation life (D-943) of approximately 3000 hours.



AW Hydraulic Fluid

Economical anti-wear hydraulic oil offered in three viscosity grades.

Recommended for the lubrication of vane, gear and piston pumps that require some level of anti-wear, oxidation resistance, corrosion protection, demulsibility, and anti-foaming characteristics.



Amalie R&O Turbine Oil

A premium rust and oxidation inhibited lubricant formulated with high V.I base stocks. This fluid is not formulated with zinc-containing additives, which are not recommended in some compressor and turbine applications.

Provides rust and oxidation protection, demulsibility, ant-foaming properties and good filterability.

This product line may be used in air compressor systems, circulating oil systems, steam turbines, gas turbines, and mild EP hydraulic systems.

Meets CMMCO P-38, P-54, P-57; General Electric GEK 32568; Solar Turbines ES9-224; DIN 51524 (part 1) and Denison HF-1.



Hydraulic Jack Oil & General Purpose Oil

This is a medium viscosity oil approximating ISO 22 grade with good anti-foaming characteristics.

Recommended for use as a general purpose circulating oil for applications such as hydraulic jacks and systems encountering high leakage or minimal need for high anti-wear and corrosion properties.

Typical Inspection Data

	All-Weather				AW Hydraulic Fluid			Amalie R&O Turbine Oil			Hydraulic Jack
ISO Grade	32	46	68	100	32	46	68	32	46	68	22
SAE Grade (Approx.)	10W	20	20	30	10W	20	20	10W	20	20	10W
Part No.	6360	6361	6363	6365	6380	6381	6382	6393	6394	6395	6390
API Gravity	32.0	31.8	31.1	29.7	21.7	21.5	21.4	29.6	29.3	20.0	32.7
Flash Point C°(D92)	218	220	225	240	215	220	225	210	215	220	200
Viscosity, cSt @40 C° @100 C°	31.8 5.5	45.9 16.9	68.0 9.0	100.8 11.5	26.8 ---	41.4 ---	61 ---	31.4 5.3	48.3 6.9	68.1 7.3	18.9 ---
Viscosity Index	103	102	102	102	---	---	---	97	99	98	---
Pour Point, C°	-32	-29	-15	-12	-12	-12	-10	-15	-14	-12	-10

For OEM Specifications Please Refer to the Chart Below

Hydraulic, Turbine, and R&O Oils Performance Chart

Specifications	AMA Oil R&O	All Climate	Low Temp	All Weather	AW Hydraulic	R&O Turbine
Denison						
HF-0	x	x	x	x	---	---
HF-1	x	x	x	x	x	x
HF-2	x	x	x	x	---	---
Vickers						
M-2950-S	x	x	x	x	---	---
I-2860-S	x	x	x	x	---	---
CMMCo						
P-68/69/70	x	x	x	x	---	---
US Steel 126	x	x	x	x	x	x
US Steel 127	x	x	x	x	x	---
US Steel 136	x	x	x	x	---	---
Sunstrand	x	x	x	x	---	---
Rexroth	x	x	x	x	x	---
Racine	x	x	x	x	---	---
Parker	x	x	x	x	x	---
GEK 32568A	---	---	---	---	---	x
BS 489	---	---	---	---	---	x
DIN 51515	---	---	---	---	---	x
Solar Turbines	---	---	---	---	---	x

For assistance please contact
an AMALIE Technical Services at 1-800-368-1264

Tractor Hydraulic



All Trac 245

All Trac 245 is a multi-purpose tractor fluid formulated with premium hydrocracked base stocks and an advanced additive system.

It is recommended for use in tractor transmissions, final drives, wet brakes and clutches, power take-offs, and power steering units.

This is a premium multi-purpose fluid that is recommended for all tractor equipment that requires a single oil for the common sump. The formulation contains performance additives that provide anti-wear and extreme pressure protection, oxidation stability, corrosion resistance, thermal stability and excellent low temperature properties.



The use of this fluid will satisfy the following:

- 1. John Deere J20C, J20 A/B, J14 B/C, J21A, JDT 303, Quatrol®, Hygard
- 2. Kubota UDT
- 3. Massey-Ferguson M-1141, M-1135, M-1129A, M-1127 A/B, M 1110, Perma Tran III
- 4. AGCO (Allis, Allis-Chalmers, Minneapolis Moline, Oliver, White and New Idea)
- 5. J.I. Case, including International Harvester, Stieger, David Brown
- 6. Ford-New Holland M2C41 A/B, M2C53A, M2C86 A/B, M2C134 A/B, M2C48B, M2C77A
- 7. Komatsu
- 8. Leyland
- 9. TCH fluid, Hy-tran Fluid, Power Guard PTF
- 10. Allison C-4
- 11. Caterpillar TO-2
- 12. Denison HF-2
- 13. Vickers

Typical Inspection Data

	All Trac 245
SAE Grade (Approx.)	10W-20
Part No.	6427
API Gravity	29.5
Flash Point C°,(D92)	195
Viscosity, cSt @40 C°	52.4
@100 C°	9.3
Viscosity Index	140
Brookfield Viscosity cPs,(Max.) @ -20 C°	5500
@ -35 C°	70,000
Pour Point, C°	-40



Elixir

Amalie Elixir is a Lithium Complex thickened grease with excellent water washout resistance and rust preventive properties. It is qualified under the NLGI GC-LB class.

Because of these properties Elixir is recommended for use in applications such as construction, mining, marine and other operating conditions involving high temperature, humidity, and water contamination.

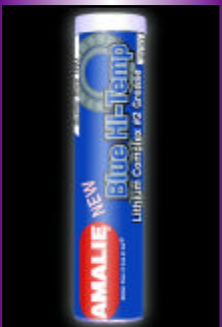
Extreme pressure and anti-weld performance are present to supplement the anti-corrosion properties.



Blue Hi-Temp

The new Blue Hi-Temp is a significantly improved grease. It is a multi-purpose lithium complex grease for automotive/truck chassis and bearing lubrication. Meets the performance targets of NLGI GC - LB (ASTM D-4950).

Provides excellent extreme pressure protection, oxidation inhibition, and water resistance and anti-rust properties. Applicable in disc brakes, wheel bearings, chassis, and ball joint lubrication. This type of grease is the most commonly used in the automotive (automobile, heavy duty diesel, marine, construction, agriculture) and industrial (steel, fabrication, machining, paper, chemical) markets.



Pro Tac Plus with 5% Moly

A Lithium Complex based grease containing 5% molybdenum disulfide. The new 5% moly formulation more than meets all of Caterpillar's rigorous off-road requirements. Recommended for high shock environment, commonly found in construction and agricultural operations. Moly prevents metal-on-metal contact under these very high shock-loading conditions. Pro Tac Plus is an excellent grease for most off-highway applications, and provides extremely high Four Ball Weld properties and excellent rust protection.

Pro Tac Plus is formulated with an optimum level of molybdenum disulfide, specifically to satisfy the stringent performance needs of heavy-duty equipment builders, such as Caterpillar, Detroit Diesel/MTU, and Kubota.



Typical Inspection Data

	Elixir	Blue Hi-Temp	Pro Tac Plus
NLGI Grade	2	2	2
Part No.	6840	6827	6844
Color	RED	Blue	Gray
Structure	Smooth	Smooth	Tacky
Thickener / Soap	Lithium Complex	Lithium Complex	Lithium Complex
Dropping Point, C°/F°	260+ / 500+	260+ / 500+	315 / 599
Rust Protection, 48hrs. @125 F° D-1743	Pass	Pass	Pass
Four Ball Weld kg., D-2596	315	315	620
Timken OK Load, 10 Mins, lbs., D-2509	80	80	50





Multi-Purpose Lithium

A lithium thickened grease possessing good extreme pressure (EP), anti-wear properties, and strong anti-rust characteristics. Recommended as general performance chassis and bearing grease for automotive and industrial applications



Heavy Duty Wheel Bearing

A sodium grease possessing a highly fibrous structure with good anti-rust and extreme pressure properties. Formulated to provide excellent lubrication properties for open, heavy-duty bearings .

Heavy Duty Wheel Bearing grease imparts excellent resistance to displacement under high loads or centrifugal action. Not recommended for disc brake applications.

Typical Inspection Data

	MP Lithium	HD Wheel Bearing
NLGI Grade	2	4
Part No.	6822	6813
Color	Maroon	Yellow
Structure	Smooth	Fibrous
Thickener / Soap	--- Lithium	Sodium ---
Dropping Point, C°/F°	195 / 383	169 / 336
Rust Protection, 48hrs. @125 F° D-1743	Pass	---
Four Ball Index kg., D-2596	44	---
Timken OK Load, 10 Mins, lbs., D-2509	40	---

Other Products & Services

Specialty Oils

- Aviation Oils
- Compressor Oils
- Concrete Form Oils
- Cutting Oils
- Industrial Oils
- Marine Engine Oils
- Open Gear Oils
- Power Plant Oils
- Rairoad Engine Oils
- Stationary Engine Oils
- Sugar Mill Oils

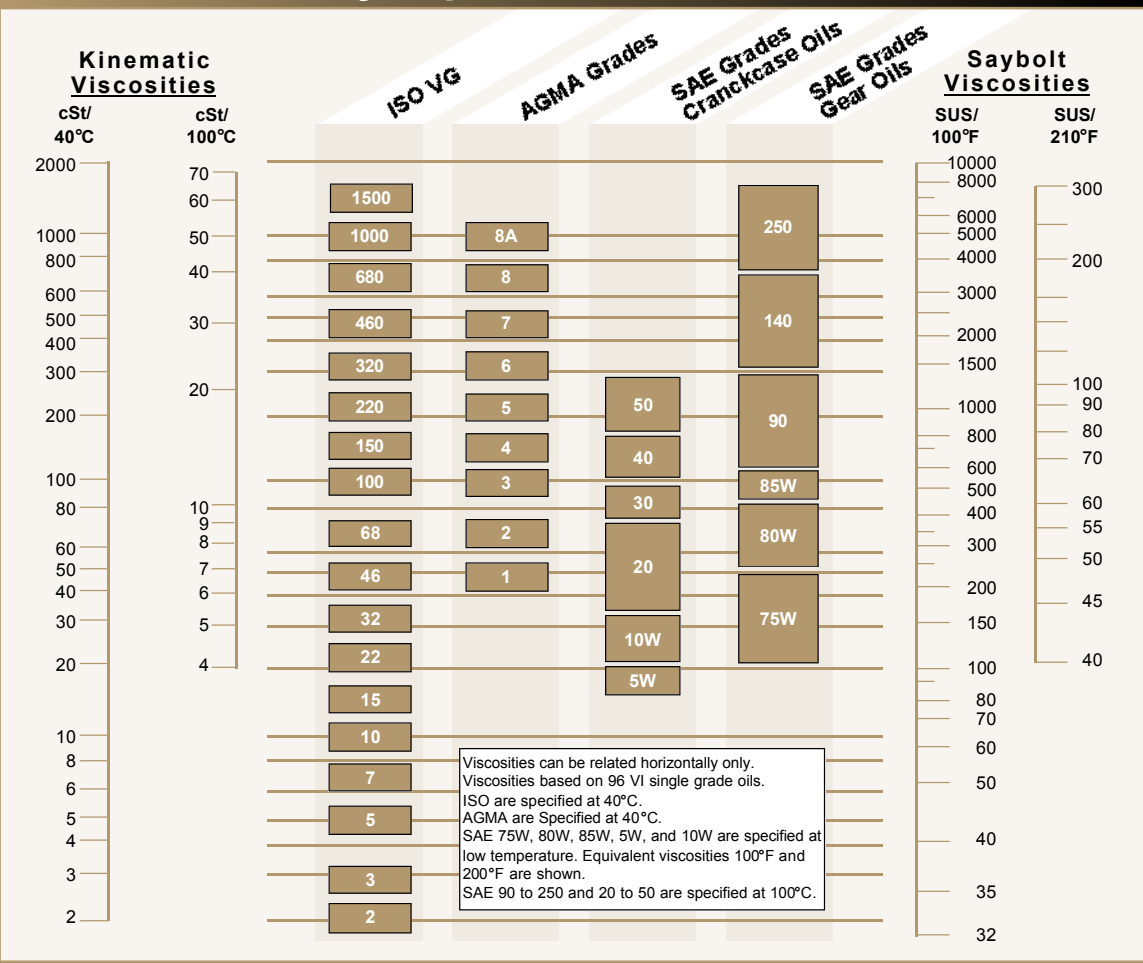
Automotive Chemicals

- Antifreeze
- Special Application Chemicals
- Brake Fluids
- Power Steering Fluid
- Windshield Washer Fluid

Services

- Private Label Services
- Used Oil Analysis

Viscosity Equivalents Classification



SAE Viscosity Grades for Engine Oils

SAE Viscosity Grade	Low Temperature(°C) Cranking Viscosity, cP Max	Low Temperature(°C) Pumping Viscosity, cP Max With No Yield Stress	Kinematic Viscosity(cSt) at 100°C Min	Kinematic Viscosity(cSt) at 100°C Max	High-Shear Viscosity(cP) at 150°C and 10 s ⁻¹ Min
0W	3250 at -30	60,000 at -40	3.8	---	---
5W	3500 at -25	60,000 at -35	3.8	---	---
10W	3500 at -20	60,000 at -30	4.1	---	---
15W	3500 at -15	60,000 at -25	5.6	---	---
20W	4500 at -10	60,000 at -20	5.6	---	---
25W	6000 at -5	60,000 at -15	9.3	---	---
20	---	---	5.6	<9.3	2.6
30	---	---	9.3	<12.5	2.9
40	---	---	12.5	<16.3	2.9(0W-40, 5W40, and 10W-40 grades)
40	---	---	12.5	<16.3	3.7 (15W-40, 20W-40, 25W-40, and 40 grades)
50	---	---	16.3	<21.9	3.7
60	---	---	21.9	<26.1	3.7

The information presented herein is based on the best available data and is believed to be correct. However, nothing stated in this bulletin is to be taken as warranty, expressed or implied, regarding the accuracy of the information or the use of our product or products; nor shall anything contained herein be construed or constitute a permission or recommendation to practice any invention covered by a patent owned by Amalie Oil Co., any of its divisions, or by others, without license from the owner of the patent.



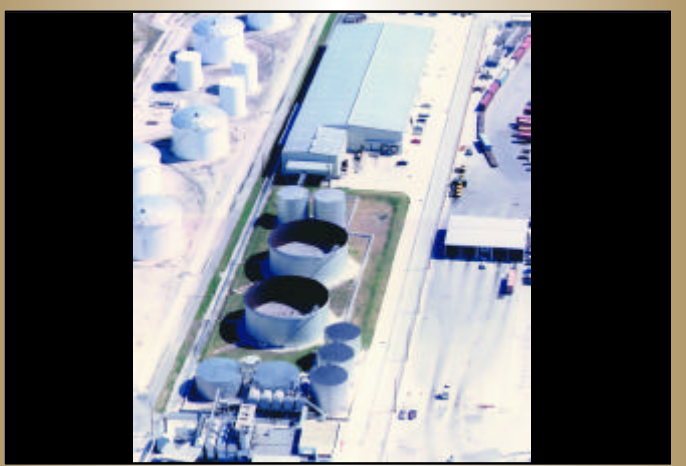
Tampa, Florida



Dallas, Texas



Los Angeles, California



Jacksonville, Florida

In 1903 the Sonneborn brothers founded The Amalie Oil Company in Franklin, Pennsylvania. They named their new company after their grandmother, Amalie Sonneborn. From the outset, Amalie quickly developed a reputation for high-quality, well-engineered petroleum products. Most people in the transportation industry are well aware of Amalie's quality and progressive nature; most also realize that Amalie's XLO Diesel Engine Oils are second to none, but not many people know that it was Amalie that developed the first multi-viscosity motor oil. In 1953, when the automotive industry asked for new high-detergent oils that could operate in any temperature or climate, Amalie answered the call with Amalie Imperial 10W30.

Amalie continues to be the market innovator: New products, new laboratories, new and improved laboratory testing equipment, new marketing approaches, new markets and new people help Amalie stay fresh and ahead of the marketing and technology curve. In 1999, Amalie began redefining its oil and grease products as

well as introducing new and better automotive chemicals into its product lineup. One hundred and fifty-five thousand square feet of new manufacturing and warehousing capacity have been added to Amalie's Tampa, Florida physical plant. Additionally, we have improved our Jacksonville, Florida and Dallas, Texas Distribution points and added a new distribution point in Los Angeles, California to better serve our customers.

Amalie also blends and packages products for a number of technically demanding major oil companies. In testament to our quality service, work ethic and skill level, Amalie has blended and packaged for most of these major oil companies for better than thirty years. Also, Amalie counts more than 140 private label companies among its family of satisfied customers.

When the industry changed from the 1-quart oil can to the 1-quart plastic bottle, Amalie was one of few companies that not only made the change, but also began to blow-mold its own bottles on site. We now have four highly automated blow-mold units

producing some of the best bottles in the industry. Amalie currently manufactures its own 8-ounce, 235-ml, 12-ounce, 355-ml, 1-quart, 1-liter, 1-gallon, 4-liter and 5-liter bottles. There are plans to add new manufacturing units and new bottle sizes and shapes. This "home-grown" bottle manufacturing helps us control costs and speed product deliveries.

In an effort to help distributors promote and market Amalie products, Amalie will continue to be involved in automobile racing. Beginning in 1999, Amalie signed a multi-year agreement with the International Hot Rod Association (IHRA) to sponsor at least two Amalie named races per year and to become the official oil of the IHRA. This agreement renews an association and a commitment begun in the early 1960's when Amalie was the respected leader in drag racing circles.

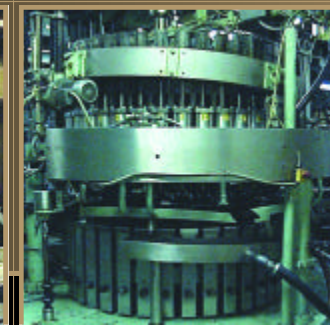
When it comes to new markets, Amalie doesn't back down from any challenge, either. Amalie is no longer just a regional manufacturer, or even one that just delivers throughout these United States, we deliver

products into more than seventy countries around the world. When the Former Soviet block countries went looking for quality suppliers who could help them build markets and economies, Amalie was there. In a first for a U. S. company, Amalie manufactured and shipped 89,000 55-gallon drums of agriculture and industrial oils to the Ukraine in cooperation with the Ukraine government, the U. S. government and an emerging Ukrainian private sector customer. Amalie's shipment to the Ukraine was the largest single shipment of lubricating oil ever to sail from the United States to the Ukraine.

Amalie is one of the few oil companies that know its future. Amalie will continue to grow and serve its customers. Amalie will continue to be in the forefront of innovation. Amalie will continue to produce products that are **Better than they have to be!**



The progression of AMALIE quart bottles. From glass to cans to the standard bottle of today, the plastic quart bottles we produce on site at AMALIE in Tampa, FL.



Improvements are in abundance at AMALIE. New laboratory equipment will insure that AMALIE products are of the highest quality and consistency. New line equipment can fill more than 270 bottles a minute.

Quality since 1903



Better than it has to be.®
Since 1903

Amalie Oil Company

1601 McCloskey Boulevard, Tampa, Florida 33605

Phone: (813)248-1988 or Fax: (813)248-1488

E-Mail: Info@Amalie.Com

WWW.AMALIE.COM



Official Oil of the International Hot Rod Association