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gears  
oils

agip lubricants  
technology comes alive



**eni**, through its **Agip brand**, is the leading company in the industrial lubricant market in Italy. Technical and commercial leadership is maintained and reinforced by **eni's** commitment to **technology, quality, environmental protection and technical customer support**.

#### technology

The internationally recognised advanced level of expertise and equipment at the San Donato Milanese laboratories generate the development of products and processes for the most modern production requirements.

#### quality

All plants in the lubricant production cycle operate in accordance to a certified quality management system in conformity with standard ISO 9002.

#### environment

Attention to the environment is one of the main guiding principles in product development and in the production cycle. All plants implement a certified environmental management system in conformity with standard ISO 14001.

#### technical support

The highly qualified technical manpower are the highly dispersed global operations, ensured outstanding technical back up support services to customers, security in total customers satisfaction.

The industrial product line includes lubricants and special products to satisfy all the lubrication requirements of any type of industrial plant at a qualitative level at the top of the market.

More information about application, characteristics and TDS is available on <https://nalis.eni.it/Alis> and by e-mail [alis@eni.it](mailto:alis@eni.it)

## industrial gears oils

A good gear lubricant must possess, in addition to the properties common to all good quality lubricants (i.e. resistance to oxidation, antirust capacity, high viscosity index), an high strength film necessary to limit wear of the teeth surfaces both during hydrodynamic condition, but also in the extreme cases of mixed and boundary conditions. While the gears are operating, incidental overloading, impacts and vibrations increase the probability that micro scale irregularities on the surface of the teeth merge to create uneven wear.

The functions of the lubricant are:

- to reduce friction and wear between the teeth and to avoid direct metal-metal contact;
- to remove the heat that is generated in the mesh;
- to contribute to reducing noise and vibrations and the effects of sudden overloading.

The lubricants of the AGIP BLASIA range are available in various viscosity grades, base type and additive content, so as to satisfy all industrial applications. Their high performance levels are assured by Eni experience. The additives enable most of the products of the range to exceed the 12th stage of the FZG antiwear test, guaranteeing reducers a long life.

### FZG test

The FZG test uses DIN 51354 or IP 334 methods. The bench test consists of a circulation system with two gearboxes connected by a coupling pinion. The system is immersed in the oil under examination which is initially thermostatically controlled at the required temperature. The gear is rotated at the required speed for a determined time (generally 1450 rev/min. for 15 minutes) and progressively increasing loads are applied. The system is then dismantled and the markings and signs of seizure on the pinion teeth are evaluated. The stage of damage, which determines the end of the test, is the load at which the sum of the total width of the areas damaged on the surfaces of all the pinion teeth exceeds 20 mm.

## mineral gear lubricants

### for carter gears

#### AGIP BLASIA

Extreme Pressure (EP) type mineral oils available in a wide range of ISO VG viscosity grades. They are suitable for the lubrication of all types of closed Carter gears in conditions of high loads and at high speeds, also in high temperature conditions. The ISO VG 32 grade is specific for VOITH type railway transmissions.

#### AGIP BLASIA P

Extreme Pressure (EP) type mineral oils available in very high ISO VG gradations. They are particularly recommended for the lubrication of large reducers operating at slow speeds and at high loads. They may also be used on exposed gears given their excellent adhesiveness and resistance to the action of water.

#### BLASIA FMP

The AGIP BLASIA FMP series are very high performance gear oils for lubricating in extreme pressure conditions (EP) the last generation industrial gear reducers, in particular, those extremely compact and of high specific power that could have problems of micropitting damages.

#### AGIP BLASIA BM

Mineral based lubricants, with additives of sulphur and phosphorus compounds and molybdenum bisulphide, suitable for the lubrication of gears, chains and belts with extremely high loads.

#### AGIP ACER

R&O highly refined paraffin based mineral lubricants for gears that do not require EP characteristics, plain and rolling bearings, crank gears, couplings and oil-bath clutches.

### for open gears

#### AGIP FIN

Lubricants characterised by good adhesiveness. The presence in the formulation of antiweld additives makes them appropriate for lubricating gears that are subjected to dynamic stresses.

#### AGIP SAGUS 60

Graphite treated lithium grease (NLGI 000) which possesses distinct adhesive properties and gives a solid film to ensure the lubrication of gears in conditions of notable mechanical and thermal stress.

PRODUCTS	ISO LEVELS	ISO STANDARD	DIN	ANSI/AGMA	OTHER SPECIFICATIONS AND APPROVALS
AGIP BLASIA	CKC	12925-1	51517 CLP	9005-E02 (EP)	U.S. STEEL 224 ASLE EP CINCINNATI MILACRON P-74 DAVID BROWN S1.53.101 VOITH FLENDER
AGIP BLASIA 32	CKC	12925-1	51517 CLP	9005-E02 (EP)	SULZER ZBS 2201
AGIP BLASIA FMP	CKC	12925-1	51517 CLP	9005-E02 (EP)	
AGIP BLASIA P	CKC	12925-1	51517 CLP	9005-E02 (EP)	
AGIP BLASIA BM	CKC	12925-1	51517 CLP	9005-E02 (EP)	
AGIP ACER	CKB	12925-1	51517 CL	9005-E02 (RO)	
AGIP FIN 332/F	CKH-DIL	51513 BC-V			
AGIP FIN 360/EP/F	CKJ-DIL	51513 BC-V			
AGIP SAGUS 60	CKL	51826 GF 00 G-10			

## synthetic gear lubricants

#### AGIP BLASIA SX

Very high performance synthetic hydrocarbon based lubricants. They have a very high thermo-oxidative resistance and a particularly high viscosity index. They are thus particularly recommended for the lubrication of gears in a wide range of temperatures and in particular for extreme conditions up to 200°C.

#### AGIP BLASIA FSX

The AGIP BLASIA FSX series are very high performance synthetic (PAO) gear oils for lubricating in extreme pressure conditions (EP) the last generation industrial gear reducers, in particular, those extremely compact and of high specific power that could have problems of micropitting damages.

### AGIP BLASIA S

Synthetic polyglycol based lubricants recommended for lubricating gears and other couplings operating at high temperatures up to 200°C. These products are highly recommended for the lubrication of worm reducers. They are not compatible with other gear lubricants of a different base.

### AGIP TELIUM VSF

Synthetic polyglycol based lubricants recommended for lubricating gears, bearings and other couplings operating at high temperatures up to 200°C. These products are highly recommended for the lubrication of worm reducers. They are not compatible with other gear lubricants of a different base.

### AGIP ARUM HT

A lubricant formulated from special ester synthetic bases with additives to confer antioxidant and antiwear properties. Suitable for the lubrication of gears, chains and bearings operating continually at extreme temperatures (over 200°C), because it does not leave deposits or sludge in such conditions.

### AGIP SP/EB

Very high quality lubricants formulated from special biodegradable synthetic ester bases. Their particular additives guarantee high antiwear properties and good resistance to oxidation.

### AGIP GREASE SLL00

Lithium grease (NLGI 00) with synthetic polyglycol base oil. The additives in this product allow operation at high temperatures. Suitable for life lubrication of dynamic couplings and helicoidal wheel worm type Carter gears.

PRODUCTS	ISO LEVELS	ISO STANDARD	DIN	APPROVAL
AGIP BLASIA SX	CKD	12925-1	51502 CLP-HC	ALFA LAVAL (GRADATION ISO 320)
AGIP BLASIA FSX	CKD	12925-1	51502 CLP-HC	FLENDER LEVEL
AGIP BLASIA S	CKS	12925-1	51502 CLP-PG	SCHINDLER (GRADATION ISO 320)
AGIP TELIUM VSF	CKS	12925-1	51502 CLP-PG	
AGIP ARUM HT	CKS	12925-1	51502 CLP-E	
AGIP GREASE SLL 00	CKG		51826 GPPG 00K-20	

ISO VG VISCOSITY PRODUCTS	15	22	32	68	100	150	220	320	460	680	800*	1000	2200	3200
AGIP BLASIA			X	X	X	X	X	X	X	X	X			
AGIP BLASIA FMP						X	X	X	X					
AGIP BLASIA P												X	X	X
AGIP BLASIA BM							X							
AGIP ACER	X	X	X	X	X	X	X	X	X					
AGIP BLASIA SX					X		X	X						
AGIP BLASIA FSX						X	X	X	X	X				
AGIP BLASIA S						X	X	X	X (*)					
AGIP TELIUM VSF						X (*)		X						
AGIP ARUM HT							X							
AGIP SP/EB							X		X					

notes: \* non ISO VG viscosity  
(\*) the availability of these products is tied to the requirements requested

applications	PRODUCTS
unloaded carter gears	AGIP ACER
loaded carter gears	AGIP BLASIA
loaded carter gears (micropitting)	AGIP BLASIA FMP
gears at high temperature	AGIP BLASIA SX
gears at high temperature (micropitting)	AGIP BLASIA FSX
	AGIP BLASIA S
worm gears	AGIP TELIUM VSF
	AGIP GR SLL 00
reducers with a risk of leaks to the environment	AGIP SP/EB
gears operating at low-medium speeds and with high loads	AGIP BLASIA BM
Voith railway transmissions	AGIP BLASIA 32
slow, high-loaded gears	AGIP BLASIA P
open gears	AGIP FIN
mills & kilns in cement works	AGIP SAGUS 60
extreme temperature chains	AGIP ARUM HT 220