

A clean solution
for sure!



For everyone with industrial requirements.

Aral Industrial Lubricants product catalogue





Clean technology protects your machinery.



Aral industrial lubricants from A-Z

Our product catalogue provides a convenient overview of the Aral lubricant product line-up for industrial use – from our standard selection of top-quality lubricants to custom special lubricants for individual problem solutions.

Product search made easy

Use the alphabetical index of product names or the overview of Aral product groups on page 3 to find a specific product. You can also use the list of key words found in the catalogue appendix in your product search.

You can find additional information on the products as well as current product and safety data sheets on the Internet at www.aral-lubricants.de.

Should you have further questions about the range of Aral lubricants, please contact your Aral sales manager or the technical service.



Contents

Products and product groups

Aral products	
	Page
Aral Aralub	7-8
Aral Aralux	10
Aral Deganit	10-11
Aral Degasol	11
Aral Degol	6
Aral Emulsol	9
Aral De-foamers	12
Aral Farolin	11
Aral Kowal	12
Aral Montral	5
Aral Motanol	12
Aral Multidyn	12
Aral Multrol	9
Aral Resilan	12
Aral Ropa	9
Aral Sarol	8
Aral Sulnit	9
Aral M Systems Cleaner	12
Aral Vitam	4-5
Aral Vitamol	5

Aral product groups	
Hydraulic oils	4-5
HLP hydraulic oils	4
HLP-D hydraulic oils	4
HVLP-D hydraulic oils, zinc-free	5
Fire-resistant hydraulic fluids	5
Shock absorber oils	5
Gear oils	6
Circulating gear oils	6
High-performance gear oils	6
Synthetic gear oils	6
Greases	7-8
Semi-fluid greases	7
Adhesive greases	7
High-temperature greases	7
Heavy-duty greases	7
Low-temperature greases / high-speed greases	8
Biodegradable lubricating greases	8
Cooling lubricants, water-miscible	8-9
Semi-synthetic/containing boron and amines	8
Semi-synthetic/boron-free	8
Semi-synthetic/boron- and amine-free	8
Containing mineral oil/boron- and amine-free	9
Forming oils, water-miscible	9
Synthetic grinding solutions	9
Cooling lubricants, water-immiscible	9-10
Multi-purpose oils	9
Machining oils	9
Grinding oils	9
Forming oils	9
Vanishing forming oil	10
EDM oils	10
Adhesive lubricants	10-11
Bed way oils/slideway oils	10-11
Other products	11-12
Stationary gas engine oils	11
Heat transfer oils	11
Compressor oils, mineral oil-based	11
Corrosion inhibitors	12
Industrial cleaners	12
Service products	12

Hydraulic oils

Product	Viscosity (mm ² /s) 40°C	Density (g/ml) 15°C	Pour point °C	Flash point °C	Product description
HLP Hydraulic oils					
Aral Vitam GX 32	32	0,876	-27	200	Aral Vitam series are high-performance hydraulic oil that corresponds to the type HLP. The products fulfill the requirements of the DIN 51524-2, with a large margin of reserve. Due to the properties of this hydraulic oils, they have excellent wearing protection over a broad load range, very good air and water separation ability, minimal foaming tendency, optimal corrosion prevention, good sealing consistency and a high aging stability.
Aral Vitam GX 46	46	0,876	-24	200	
Aral Vitam GX 68	68	0,881	-21	220	
HLP hydraulic oils, zinc-free					
Aral Vitam GF 10	10	0.860	-30	140	Zinc-free HLP hydraulic oils in line with DIN 51 524-2. Good demulsification, high level of ageing resistance, corrosion protection and wear protection properties.
Aral Vitam GF 22	22	0.869	-27	170	
Aral Vitam GF 32	32	0.872	-27	200	
Aral Vitam GF 46	46	0.875	-27	200	
Aral Vitam GF 68	68	0.877	-18	200	
Aral Vitam GF 100	100	0.880	-21	220	
Aral Vitam MW 46	46	0,878	-27	220	Aral Vitam MW 46 is a high-performance zinc free hydraulic oil corresponding to the "type HLP". Due to the properties of this hydraulic oil, it has excellent anti-wear protection over a broad load range, very good air and water separation, minimal foaming tendency, optimal corrosion prevention, good sealing compability and a high ageing stability. Aral Vitam MW 46 can be used where special thermal or mechanical loads require high-performance hydraulic oils.
HLP-D hydraulic oils, zinc-free					
Aral Vitam DE 10	10	0.874	-30	125	Zinc-free HLP-D hydraulic oil in line with DIN 51 524-2 with very good detergent and dispersal properties and wear protection. Use e.g. in machine tools and hydraulics with potential water ingress.
Aral Vitam DE 22	22	0.869	-33	214	
Aral Vitam DE 32	32	0.874	-24	210	
Aral Vitam DE 46	46	0.875	-21	225	
Aral Vitam DE 68	68	0.880	-24	246	
HLP-D hydraulic oils, zinc-free fine filtered					
Aral Vitam DF Top 46	46	0.874	-30	232	Zinc-free finely filtered HLP-D hydraulic oil in line with DIN 51 524-2 with a very high level of purity, detergent/dispersal properties and excellent anti-wear properties. Use in hydraulic systems under difficult conditions.
Aral Vitam DF Top 68	68	0.876	-24	250	
HVLP Hydraulic oils. zinc-free					
Aral Vitam HF 32	32	0,872	-39	180	Aral Vitam HF series are high quality, mineral oil based product, that guarantee a high function and operational safety. The capabilities of this high VI (Viscosity Index) zinc free hydraulic oil exceeds the requirements of DIN 51524-3 for HVLP oils. The excellent viscosity temperature performance of the oils are its special quality characteristic. With an optimal operational viscosity over a wide temperature range, the hydraulic oils are guaranteed to maintain a high performance even at very low temperatures.
Aral Vitam HF 46	46	0,876	-39	180	

Hydraulic oils

Product	Viscosity (mm ² /s) 40°C	Density (g/ml) 15°C	Pour point °C	Flash point °C	Product description
HVLP Hydraulic oils.					
Aral Vitam SHF-HV 68	68	0,880	-36	230	Aral Vitam SHF-HV 68 hydraulic oil is a premium high viscosity index lubricant and based on the latest stabilised zinc additive technology. It contains a shear stable VI improver which helps to maintain the viscosity characteristics of the product over a wide temperature range even during prolonged use.
HVLP-D hydraulic oils, zinc-free					
Aral Vitam VF 46	46	0.875	-45	208	Zinc-free HVLP-D hydraulic oils in line with DIN 51 524-3 with very high VI and very good detergent/dispersal properties. The very good viscosity-temperature performance enables a wide range of applications. Especially well suited to hydraulic systems subjected to severe temperature changes and, for example, in machine tools with potential water ingress.
Aral Vitam VF 68	68	0.878	-45	218	
HLP Hydraulic oils, bio-degradable					
Aral Vitam BS 68	68	0,950	-30	230	Aral Vitam BS 68 is based on selected additives to ensure excellent oxidation stability, outstanding anti-corrosion and anti-wear properties as well as compability with bearing alloys containing lead. Due to the selection of synthetic base oil, saturated synthetic esters and synthetic hydrocarbons, the product has a very high viscosity index and an extremely low pour point. It should be used in all hydraulic systems, where leakages may pollute natural water and drainage systems - for instance in earth-moving, agricultural and forestry machinery, refuse lorries, rail cars, presses and wrapping machines.
Fire-resistant hydraulic fluids					
Aral Montral 44	46	1.07	-40		Fire-resistant HFC-type hydraulic fluid. Approved according to the 7th Luxembourg report of the European coal and steel industry.
Shock absorber oils					
Aral Vitamol 1010	15	0.895	-37	145	Shock absorber oils proven over many years, primarily used in the automotive industry.
Aral Vitamol 4004	16	0.874	-57	145	
Aral Vitamol ZH-M	16	0.865	-48	160	Hydraulic oil for Daimler Chrysler car levelling sheet 343

Gear oils

Product	ISO-VG	Density (g/ml) 15°C	Pour point °C	Flash point °C	Vehicle test	Product description
Circulating gear oils						
Aral Degol CL 220T	220	0.888	-12	290	>12	Silicone-/zinc-free circulation gear oil with good ageing resistance, corrosion protection and optimum demulsification properties according to 181 225. CL gear oil in line with DIN 51 517-2.
High-performance gear oils						
Aral Degol BG 32	32	0.867	-27	218	>12	Silicone-/zinc-free high-performance gear oil with high-performance properties for encapsulated gear bores. High wear protection levels in the mixed friction range. Highly suitable for the lubrication of bearings. Achieved wear values under 5 mg in the FAG-FE 8 test and designated test winner. Aral Degol BG 68 to Aral Degol BG 460 are approved in line with SEB No. 181 226. CLP gear oils in line with DIN 51 517-3.
Aral Degol BG 46	46	0.876	-24	234	>12	
Aral Degol BG 68	68	0,880	-30	242	>12	
Aral Degol BG 100	100	0.890	-12	238	>14	
Aral Degol BG 150	150	0.886	-12	270	>14	
Aral Degol BG 220	220	0.888	-12	275	>14	
Aral Degol BG 320	320	0,894	-15	250	>14	
Aral Degol BG 460	460	0,897	-12	305	>12	
Aral Degol BG 680	680	0,905	-15	292	>12	
High-performance gear oils with solid lubricant additives (MoS2)						
Aral Degol BMB 100	100	0.888	-27	226	>12	Silicone-/zinc-free high-performance gear oils with solid lubricant additives (MoS2) for high-load gears, especially suited to tough operating conditions with severe shock and vibration stresses and risk of pitting. Good ageing resistance and wear protection properties. CLP-F gear oils in line with DIN 51 517-3.
Aral Degol BMB 220	220	0.893	-15	222	>12	
Aral Degol BMB 320	320	0.895	-12	268	>12	
Aral Degol BMB 460	460	0.898	-9	270	>12	
Aral Degol BMB 680	680	0.908	-6	284	>12	
Aral Degol BMB 1200	1200	0.917	-9	260	>12	
Synthetic gear oils based on PAG						
Aral Degol GS 220	220	1.001	-45	278	>12	Aral Degol GS series are a high performance gear oils based on CLP-HC type Polyglycol, in accordance with DIN 51517-3. This product guarantees a high protection from scuffing and micro-pitting. The special wearing protection, favorable friction behavior, thermal and oxidation stability, very good viscosity temperature behavior, and its distinct corrosion reduction qualities, all distinguish this gear oil.
Aral Degol GS 320	320	1.000	-42	282	>12	
Aral Degol GS 460	460	1.000	-39	285	>12	
Aral Degol GS 680	680	1.000	-36	292	>12	
Synthetic gear oils based on PAO						
Aral Degol PAS 320	320	0,860	-36	230	>14	Fully synthetic, zinc-free EP gear oils with a poly-glycol base and very high VI >200 for high levels of thermal/mechanical stress and risk of pitting. FVA 54 pitting test, load stage greater than 10 Suitable for worm gears to reduce power loss. CLP-HC gear oils in line with DIN 51 517-3.

Greases

Product	Labelling according to DIN 51 502/ DIN 51 825	Thickener	NLGI class	Base oil viscosity up to 40°C (mm ² /s)	Usage temp. (°C)		Dropping point (°C) DIN ISO 2176	Worked penetration (0.1 mm) DIN ISO 2127	Product description
					from	to			
Semi-fluid greases									
Aral Aralub FDP 00	GP 00/000 H-30	Sodium	00/000	130	-30	100	140	425-455	Semi-fluid gear grease based on mineral oil and EP additives for lubricating spur, bevel and worm gears, gear motors, flexible couplings etc. Good corrosion protection properties, good adhesion and increased load carrying capacity.
Adhesive greases									
Aral Aralub LFZ 1	OGPF 0/1 K-20	Lithium	0/1	170	-20	120	>160	335-365	Universal adhesive grease based on mineral oil, EP additives and graphite. Primarily developed for the lubrication of open gears. Increased adhesion, good water resistance, excellent corrosion protection. Product is sprayable and characterised by low consumption rates.
High-temperature greases									
Aral Aralub HTR 2	KP 2P-20	anorg. Thickener	2	150	-25	150	-	265-295	Aral Aralub HTR 2 is a high temperature special purpose grease with modern EP additives and mineral oil base. It has an excellent oxidation stability, good adhesive properties and water resistance and is made for lubrication of friction and anti-friction bearings under pressure or high impact stress and a high temperature .
Aral Aralub MKA 2	KP 2 R-20	Al complex	2	240	-20	150	>250	265-295	High-temperature special grease with EP additives and based on mineral oil. Lubrication of rolling and sliding bearings at high loads, high storage temperatures and excellent performance in dusty and moist conditions (e.g. cement industry). Shear stable, oxidation-resistant, increased load-carrying capacity, good water resistance, good corrosion protection, high temperature range, very adhesive. At continuous temperatures over +150°C lubrication must be reapplied at shorter intervals according to the thermal load.
Aral Aralub MKA Z 1	OG PFOR-25	Al complex	0/00	1050	-10	180	>200	380-410	Sprayable adhesive grease based on mineral oil, EP additives and a special combination of solid components. For use on large open gear drives, e.g. cement tube mill. Product is free from bitumen and solvents, has excellent corrosion protection properties and has a vibration-damping effect.
Heavy-duty greases									
Aral Aralub 4320	KPF 2 N-30	Lithium	2	800	-30	140	>190	265-295	High-performance and heavy-duty grease based on semi-synthetic oil with special EP properties and solid components. Highly shear-, oxidation- and water-resistant. Good corrosion protection. Especially suitable for high-load, low-speed bearings, also for shock loads.

Greases

Product	Labelling according to DIN 51 502/ DIN 51 825	Thickener	NLGI class	Base oil viscosity up to 40°C (mm ² /s)	Usage temp. (°C)		Dropping point (°C) DIN ISO 2176	Worked penetration (0.1 mm) DIN ISO 2137	Product description
					from	to			
Low-temperature greases/High-speed greases									
Aral Aralub HLP 2	KP 2 K-20	Li-Soap	2	100	-20	120	195	265-295	Universal EP grease for roller bearings and plain bearings, as well as sliding surfaces. Reduction in wear and tear thanks to reliable corrosion protection and a high resistance to ageing.
Biodegradable lubricating grease									
Aral Aralub BAB EP 00/000	GE 00K-30	Li	00/000	45	-40	120	160	420-460	Aral Aralub BAB EP 00/000 is a biodegradable EP multi-purpose grease based on synthetic base oil. The product has an excellent oxidation stability, aging resistancy and protects against corrosion. The outstanding cold flow properties ensure lubrication of gears and bearings over a wide temperature range. It is also suitable for use in central lubrication systems.

Cooling lubricants, water-miscible

Product	Mineral oil content (%)	pH 5%	Lubrication	EP additives	Material suitability				Product description
					Steel	Cast	Aluminium	Non-ferrous metal	
Semi-synthetic									
Aral Sarol 335 S	50	9.3	no	no	++	+++	+	+	Boron- and amine-containing semi-synthetic universal coolant for normal to medium machining. Especially suited to soft water.
Aral Sarol CI 100	35	9,0	no	no	++	+++	+	+	Boron-and amine-containing semi-synthetic universal coolant for normal to medium steel machining. Particularly advantageous in machining cast iron.
Aral Sarol CI 100 Plus	42	9.1	yes	yes	+++	++	+++	+	Boron-and amine-containing semi-synthetic universal coolant. Especially advantageous in processing steel and aluminium. Free from nitrite, chlorine and silicone.
Aral Sarol 435 EP	32	9,0	yes	yes	+++	++	++	+	
Aral Sarol 460 EP	50	9.1	yes	yes	+++	++	+++	+	Boron-and amine-containing semi-synthetic coolant for heavy machining Particularly advantageous in machining aluminium.
Semi-synthetic/boron-free									
Aral Sarol CBF 200Plus	22	9.2	yes	yes	+++	++	++	+	Highly stable water-miscible cooling lubricant, free from boric acid with excellent cleaning properties, good corrosion protection and excellent foaming properties.
Teilsynthetisch/bor- und aminfrei									
Aral Sarol 471 EP	48	9,1	ja	ja	+++	++	+++	++	Boron- and amine-free, partly synthetic universal cooling lubricant. Offers particular benefits in aluminium processing. Nitrite-, chlorine- and silicone-free.
Aral Sarol 474 EP	49	9,0	ja	ja	+++	++	+++	++	
Aral Sarol 330	50	9,0	ja	ja	+++	++	+++	++	Boron- and amine-free, partly synthetic universal cooling lubricant. Offers particular benefits in steel and aluminium processing with very good hard-water resistance.

Cooling lubricants, water-miscible

Product	Mineral oil content (%)	pH 5%	Lubrication	EP additives	Material suitability				Product description
					Steel	Cast	Aluminium	Non-ferrous metal	
Mineral oil-high/boron- and amine-free									
Aral Emulsol 230	72	9,0	yes	no	++	++	+	++	Stable, water-miscible cooling lubricants with a high mineral oil content and free from secondary amines.
Aral Emulsol 230 EP	65	8.8	yes	no	++	++	+	++	
High mineral forming oil									
Aral Ropa W04	65	9.4	yes	yes	yes	yes	no	no	Water-miscible, chlorine-free special EP cooling lubricant with a high mineral oil content, especially designed for deep drawing.
Synthetic grinding solutions									
Aral Multrol G 100	0	9,1	B/A	+++	+++	+-	+	+	Synthetic grinding solution for the grinding of steel and cast iron with excellent foaming properties and good corrosion protection. Free from nitrite, chlorine and silicone.
Aral Multrol CC 100	0	9,1	B/-	++	++	+	+++	+++	Amine-free special grinding solution for machining of hard metals and non-ferrous metals. Free from nitrite, chlorine and silicone.

Cooling lubricants, non water-miscible

Product	Viscosity (mm ² /s) 40°C	Flash point °C	Lubrication	EP additives	active S	Non-ferrous metal suitable	Product description
Multi-purpose oils							
Aral Sulnit K	42.0	210	yes	yes	no	yes	Multi-purpose oils with improved lubrication for general machining of steel, cast iron and non-ferrous metals to medium requirements.
Aral Sulnit KT	6.2	128	yes	no	no	yes	
Grinding oils							
Aral Sulnit CC 5	7,7	163	no	no	no	yes	Grinding oil with a HC oil base, low evaporation.
Aral Sulnit UN	25,0	195	yes	yes	no	yes	Grinding oil for universal use.
Aral Sulnit UN-X	14,0	186	yes	yes	no	yes	High-speed grinding oil for universal use.
Forming oils							
Aral Ropa 4232	122.0	176	yes	yes	no	yes	Used for e.g. punching, deep drawing, cold extrusion of steel and non-ferrous metals.
Aral Ropa 4093	20.5	180	no	yes	no	yes	Chlorine-free special oil for non-cutting metal reshaping. Aral Ropa 4093 is used primarily for non-cutting cold forming processes.
Vanishing forming oil							
Aral Ropa RS 11	1.6	63	yes	no	no	yes	Residue-free vanishing forming oil for punching, bending and deep drawing thin sheet metal.

Cooling lubricants, non water-miscible

Product	Viscosity (mm ² /s)		Flash point °C	Lubrication	EP additives	active S	Non-ferrous metal suitable	Product description
	40°C	100°C						
Machining oils								
Aral Sulnit HM	4.3		132	yes	yes	no	yes	Universal cutting oils, well suited to a variety of materials. For example, for precision turning and drilling procedures, slitting cutters and peeling. Sulnit HM 9 can also be used for grinding carbon steel.
Aral Sulnit HM 9	9.0		152	yes	no	no	yes	
Aral Sulnit FR 25	25.0		185	yes	yes	no	yes	Suitable for machining nuts and bolts. Sulnit FR 25 is also suitable for heavier machining processes such as hobbing, thread cutting, deep drilling and non-cutting reshaping.
Aral Sulnit UT	15,1		170	yes	yes	yes	no	Used as a down-hole drilling oil for high-alloy steels.
Aral Sulnit UM	13.0		164	yes	yes	yes	no	Special cutting oil for e.g. deep drilling, profile milling and heavy machining work.
Aral Sulnit US 20	23.0		205	yes	yes	yes	no	Special cutting oil for gear machining and machine work.
Aral Sulnit US 4540	470		205232	yes	yes	yes	no	Special cutting oil for gear machining and machine work.
Aral Sulnit UP	25.0		176	yes	yes	no	yes	Used as e.g. broaching oil for interior and exterior broaching of high-alloy steels.
Aral Sulnit UR	28.0		195	yes	yes	yes	no	
Aral Sulnit RT 12	13.0		175	yes	yes	yes	no	Used for e.g. deep drilling of high-strength materials as well as the heaviest machine work.
Aral Sulnit RT 28	28.0		173	yes	yes	yes	no	Special broaching oil for e.g. heaviest broaching work to high-strength materials.
EDM oils								
Aral Aralux FE 2	2.5		105	no	no	no	yes	Suitable for finishing and light roughing work.
Aral Aralux RP	3.7		123	no	no	no	yes	Used in roughing work.
Aral Aralux 200T	2,0		103	no	no	no	yes	Aral Aralux 200 T is a low viscosity high performance electric discharge machining fluid especially designed for all spark erosion applications of all power ratings and sizes. It is equally suitable for use on all ferrous and non ferrous metals for roughing as well as finishing operations. The product enables optimum rates of metal removal, together with low electrode wear, good surface finish and fine tolerances.

Adhesive lubricants

Product	Viscosity (mm ² /s)		Density (g/ml) 15°C	Pour point °C	Flash point °C	Product description
	40°C	100°C				
Slideway oils						
Aral Deganit B 68	68	8,6	0.885	-12	230	Ageing-resistant special adhesive oils of type CGLP according to DIN 51 502 with strong adhesion. Minimises the frictional resistance between the bed rail and guide rails and reliably prevents stick-slip motion.
Aral Deganit B 100	100	10,6	0.890	-12	238	
Aral Deganit B 220	220	18,0	0.894	-15	278	
Slideaway oils, demulsifying						
Aral Deganit BW 68	68	8,90	0,895	-24	254	Adhesive oils type CGLP according to DIN 51502 with excellent demulsification properties. For lubricating slide ways which can come in contact with water-miscible cutting fluids. Prevents mixing with water-miscible cutting fluids.
Aral Deganit BW 100	100	11,5	0,699	-24	258	
Aral Deganit BW 220	220	18.70	0.894	-24	248	

Haftschmierstoffe

Product	Viscosity (mm ² /s)		Density (g/ml) 15°C	Pour point °C	Flash point °C	Product description
	40°C	100°C				
Slideaway oils, demulsifying adhesion properties						
Aral Deganit BWX 68	68	9.00	0.884	-12	236	Adhesive CGLP-type oils according to DIN 51 502 with excellent demulsification and adhesion properties. For lubricating bed ways that can come into contact with water-miscible cooling lubricants. Prevents mixing with water-miscible cooling lubricants.
Aral Deganit BWX 220	220	18.8	0.890	-12	260	

Other products

Product	Viscosity (mm ² /s)		Density (g/ml) 15°C	Pour point °C	Flash point °C	Product description
	40°C	100°C				
Stationary gas engine oils						
Aral Degasol NGL	125	13,0	0,890	-18	220	Aral Degasol NGL is a mineral based SAE 40 low ash gas engine lubricant and formulated primarily for spark ignition natural gas engines where a low ash formulation is specified and where the gas is largely free from aggressive components like halogens and hydrogen sulphide. The balanced additive system has been designed to control deposit formation and improve oxidation characteristics whilst offering excellent corrosion control and TBN retention.
Aral Degasol LFM	124	13,0	0,890	-18	250	Aral Degasol LFM is a mineral based zinc and phosphorus free SAE 40 medium ash gas engine lubricant for use in both spark ignition and dual-fuel gas engines. The formulation is designed specifically for use in four stroke medium and high speed engines running on aggressive landfill and sour gas fuel. The medium ash additive system protects against valve recession whilst still maintaining combustion space and turbocharger cleanliness. Aral Degasol LFM provides a high degree of engine protection against corrosion and wear which can result from the high concentrations of halogens and hydrogen sulphide frequently encountered in such applications.
Heat transfer oils						
Aral Farolin U	31,0	5,0	0,870	-12	210	Mineral-oil-based heat transfer oil for unpressurised operation of closed heat transfer systems working with flow temperatures of up to +320°C (max. permitted film temperature: +350°C).

Other products

Product	Viscosity (mm ² /s) 40°C	Density (g/ml) 15°C	Pourpoint °C	Flash point °C	Product description
Compressor oils, mineral-oil-based					
Aral Motanol HP 320	320	0,895	-12	285	Compressor oils, type VB/VBL according to DIN 51 506 with low evaporation loss and reduced residue formation. Used in portable air compressors and single-stage reciprocating piston and rotary piston compressors.
Aral Motanol HE 46	46	0,875	-12	230	Compressor oils, type VDL with low evaporation loss according to DIN 51 506 and high ageing resistance. Contains unique additives for increased ageing resistance and corrosion protection. Used in portable air compressors and single-stage reciprocating piston and rotary piston compressors.
Aral Motanol HE 68	68	0,877	-12	240	
Aral Motanol HE 100	100	0,880	-15	250	
Aral Motanol HE 150	150	0,885	-15	265	
Aral Kowal M 10	46	0,882	-30	220	Compressor oil, type VDL according to DIN 51 506 with low carbonisation, high thermal and oxidative stability with low evaporation loss. Used in worm, rotary and piston compressors.
Aral Motanol HV 100	92	0,880	-12	250	Special compressor oil with a narrow boiling range for mechanical fine- and high-vacuum pumps.

Product	Viscosity (mm ² /s) 40°C	Density (g/ml) 15°C	Flash point °C	Evaporation time in min.	Film thickness in µm	Type of film	Product description
Corrosion preventers							
Aral Resilan LD	1.4	0,802	>40 ¹⁾	30	2	waxy, very thin	Dewatering fluid with temporary corrosion protection based on A II test benzene, faster evaporation of the solvent.
Aral Resilan M 7	9.7	0.855	160 ²⁾		4	oily, light, not touch-dry	Barium-free multi-purpose corrosion protection oil to preserve small and micro parts, and for interim protection in manufacturing operations.
Aral Resilan WA	59 ³⁾	0.863	>40 ¹⁾		35	brown, waxy, touch-dry	Corrosion inhibitor with a waxy and touch-dry protective film. Especially suited for long-term protection of machine tools, devices and replacement parts, and for ship transport.

¹⁾ Flash point AP according to DIN 51 755

²⁾ Flash point COC according to DIN ISO 2592

³⁾ Viscosity at 20°C

Product	Product description
Industrial cleaners	
Aral Multidyn IC 360	Halogen-free, very fast evaporating degreasing fluid with a hydrocarbon base with good dissolving and cleaning performance. Excellent immersion bath degreaser. Despite its relatively low evaporation point, Aral Multidyn IC 360 demonstrates a stable flash point, ensuring safe operation. Physiologically safe.
Service products	
Aral Entschäumer 887	Mineral-oil-free de-foamer, specially designed for subsequent de-foaming of cooling lubricant emulsions and solutions.
Aral M Systems Cleaner	Cleaning agent for cleaning contaminated aqueous cooling lubricant circulating systems. Eliminates microbial impurities in the circulating system. Suitable for aqueous cooling lubricants with or without mineral oils. Concentration for usage: 1% to max. 3%, calculated for the recirculated quantity.

Appendix

Technical details

Viscosity overview tables

Viscosity as a measure of the internal friction of a fluid was defined by Newton in 1687 as the relationship between shear stress and shear rate for the 'absolute' or dynamic viscosity. For Newtonian fluid-like lubricating oils, the dynamic viscosity can be measured with the Höppler falling ball viscometer according to DIN 53 015

$$\eta; 1 \text{ Pa} \cdot \text{s} = 1 \text{ Ns/m}^2$$

$$10^{-3} \text{ Ns/m}^2 = 10^{-3} \text{ Pa} \cdot \text{s} = 1 \text{ mPa} \cdot \text{s} = 1 \text{ cP (Centipoise)}$$

One measures kinematic viscosity with the Ubbelohde capillary in line with DIN 51 562.

$$\nu = \eta/\rho \quad 1 \text{ m}^2/\text{s} = 10^6 \text{ mm}^2/\text{s} = 10^6 \text{ cSt (Centistokes)}$$

ISO-VG

ISO-VG refers to a rounded value of a series of systematically graduated values in line with DIN ISO 3448 for the kinematic viscosity of liquid industrial lubricants.

The rounded value of, for example, ISO-VG 7 is derived from the value of 6.8 mm²/s, the value of the mid-point viscosity at 40°C. The individual mid-point viscosity value is approximately 50% more/less than its previous/following value. The permissible limits of an ISO-VG are +/-10% of the mid-point viscosity value.

ISO-Viscosity grade	Mid-point viscosity at 40°C mm ² /s (cSt)	Limit of the kinematic viscosity at 40°C mm ² /s (cSt)	
		minimum	maximum
ISO VG 2	2.2	1.98	2.42
ISO VG 3	3.2	2.88	3.52
ISO VG 5	4.6	4.14	5.06
ISO VG 7	6.8	6.12	7.48
ISO VG 10	10	9.00	11.0
ISO VG 15	15	13.5	16.5
ISO VG 22	22	19.8	24.2
ISO VG 32	32	28.8	35.2
ISO VG 46	46	41.4	50.6
ISO VG 68	68	61.2	74.8
ISO VG 100	100	90.0	110
ISO VG 150	150	135	165
ISO VG 220	220	198	242
ISO VG 320	320	288	352
ISO VG 460	460	414	506
ISO VG 680	680	612	748
ISO VG 1,000	1,000	900	1,100
ISO VG 1,500	1,500	1,350	1,650

NLGI class

The National Lubricating Grease Institute created a consistency classification for greases – DIN 51 818. Consistency is the resistance of a grease to deformation (similar to viscosity in lubricating oils). This plasticity is dependent on the type and amount of the thickening agent, viscosity-temperature properties of the base oil and the duration of worked penetration. In accordance with the worked penetration, lubricating greases are divided into nine NLGI consistency classes.

Consistency classification in line with DIN 51 818	Worked penetration in line with DIN 51 804*)	Quality	Lubricating grease type or application
000	445–475	liquid	Semi-fluid gear greases and for use in central lubrication systems
00	400–430	thick liquid	
0	355–385	semi-liquid	
1	310–340	very soft	Gear lubrication, conveying in central lubrication systems
2	265–295	soft	Multipurpose greases for plain and rolling bearings
3	220–250	malleable	for very fast rotating rolling bearings, top-coat grease for launching ships
4	175–205	almost hard	
5	130–160	hard	conventional water pump greases
6	85–115	very hard and harder	contrary to the above classes non-worked penetration: block greases

*) DIN 51 804 T1/01.72 was replaced by DIN ISO 2137

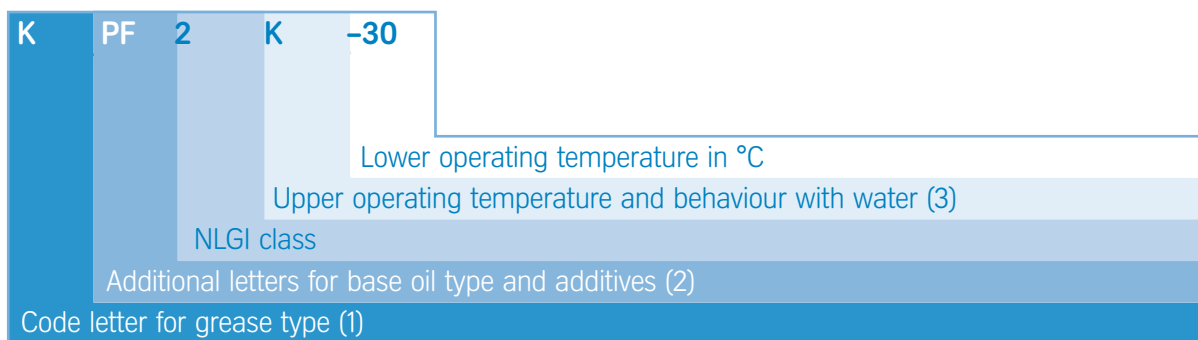
Appendix

Labelling

Labelling of greases according to DIN 51 502

DIN 51 502 describes the uniform and clear labelling of lubricants and lubrication points. This is to prevent people confusing lubricants and causing damage. In addition, this norm refers to other DIN norms where lubricants and their reviews are described and specified more precisely.

The labelling requirements for lubricants according to DIN 51 502 specify, among other things, location of use, base oil type, additives, upper operating temperature and behaviour with water.



(1) Grease type

- G Closed gears DIN 51 826
- OG Open gears
- K Rolling bearings, plain bearings, sliding surfaces in line with DIN 52 825
- M Plain bearings and seals (lower requirements than for K)

(2) Additional letter(s)

for base oil type:

- E Ester oils
- FK Fluoro-hydrocarbon
- HC Synth. hydrocarbons
- PG Poly-glycols
- PH Ester of phosphoric acid
- S Silicone oils
- X Other

for additives:

- P EP/AW additives
- F Solid lubricants, e.g. MoS₂

(3) Upper operating temperature and behaviour with water at testing temperature (DIN 51 807, T1 stat. test)

	Upper operating temperature ¹⁾	Behaviour with water ²⁾	Testing temperature
C	60°C	0 or 1	40°C
D	60°C	2 or 3	40°C
E	80°C	0 or 1	40°C
F	80°C	2 or 3	40°C
G	100°C	0 or 1	90°C
H	100°C	2 or 3	90°C
K	120°C	0 or 1	90°C
M	120°C	2 or 3	90°C
N	140°C	by agreement	
P	160°C		
R	180°C		
S	200°C		
T	220°C		
U	> 220°C		

¹⁾ The upper operating temperature for permanent lubrication is equal to the highest testing temperature in tests in line with DIN 51 806-2 and/or DIN 51 821-2, if the test runs are passed.

²⁾ Behaviour with water:

- 0 = no change
- 1 = small change
- 2 = moderate change
- 3 = significant change



Index

Alphabetical order

Page	Page
Processing oils , see Cooling lubricants,	
- water-immiscible	10
Bed way oils , see Adhesive lubricants	10
DIN labelling of lubricating greases	14
Semi-fluid greases , see Greases	7
EDM oils , see Cooling lubricants,	
- water-immiscible	10
Gear oils	6
Slideway oils , see Adhesive lubricants	10
Adhesive greases , see Greases.....	7
High-temperature greases , see Greases	7
Hydraulic fluids , see Hydraulic oils	
- fire-resistant	5
Hydraulic oils	
- HLP	4
- HLP-D	4
- HVLP-D	4
Industrial cleaners , see Other products	12
ISO-VG	13
Labelling of greases	14
Corrosion inhibitors , see Other products	12
Cooling lubricants	
- water-miscible	8
- water-immiscible	9
Multi-purpose oils , see Cooling lubricants,	
- water-immiscible	9
NLGI Class	13
Grinding solutions synthetic,	
- see Cooling lubricants, water-miscible	8
Grinding oils , see Cooling lubricants,	
- water-immiscible	9
Greases	7
High-speed greases , see Greases	8
Heavy-duty greases , see Greases	7
Service products	12
Punching oils , see Cooling lubricants,	
- water-immiscible	9
Shock absorber oils , see Hydraulic oils	5
Low-temperature oils , see Greases	8
Forming oils , see Cooling lubricants,	
- water-immiscible	9
Forming gear oils , see Gear oils	6
Compressor oils , see Other products	
- mineral-oil-based	12
Viscosity overview tables	13
Heat transfer oils , see Other products	11

Aral Extranet: Available 24/7 for most up to date information



Go to www.aral-lubricants.de for detailed product information.
Please ask your Aral representative for questions around order quantities, prices etc.

Aral Aktiengesellschaft
Lubricants business unit
Überseeallee 1
20457 Hamburg
Germany

Tel. +49 (0)800 723 71 14*
inboundaral@bp.com
www.aral-lubricants.de
www.aral.de

*Charge free within Germany for all calls from fixed and mobile network.

Correct at: June 2014

The contents of this catalogue met the current state-of-the-art technology. All technical data and notes on applications are subject to change.