PERLUBE® AND VAMA® LUBRICANTS

HIGH PERFORMANCE OILS & GREASES FOR THE CASTING OF ALUMINIUM ALLOYS

Perlube® and Vama® lubricants are specially formulated oils and greases designed for the casting of aluminium and aluminium alloys.

Used within the aluminium industry for over 40 years, Perlube and Vama lubricants leverage the natural chemistry of base mineral and vegetable oils to enhance surface-adhesion to metallic surfaces, thermodynamic stability, wear resistance, and overall lubricity at metallic interfaces.

Due partly to their thixotropic behavior, Perlube and Vama lubricants excel in harsh casting environments involving frictional wear, high temperatures, and pressure loading.

Perlube and Vama lubricants often demonstrate improved casting performance at reduced consumption rates compared to other industry lubricants.

Perlube and Vama lubricants can be applied to casting moulds either manually or delivered continuously by pump, and include a variety of product chemistries, viscosities, and textures which have been used to cast hundreds of thousands of tonnes of aluminium at casthouses all over the world.

BENEFITS

- Multiple products for both batch and continuous lubrication methods.
- Vegetable, mineral, synthetic, and blended (i.e., compounded) chemistries.
- Trialed and proven on many different styles of aluminium-casting systems.
- Thixotropic behavior delivers excellent wear-resistance at low shear speeds common in aluminium casting.
- Graphite-free and approved by the European Chemical Agency (ECHA) for European import
- Low vaporization coefficient, no hazardous fumes, and high viscosity-index.
- Lower consumption per tonne of aluminium, promotes cleaner cooling water and reduced oil absorption in refractories.
- Often allows one product and the same application rate for all alloys, especially in continuously lubricated systems.

HEALTH AND SAFETY

Prior to use, refer to the product safety data sheet for proper handling and required personal protective equipment.

PACKAGING

The following package sizes are available for Perlube and Vama lubricants; samples are also available by request.

Packaging Name	Packaging Style(s)	Product Form	Net Material Weight
Pail	Open or closed top	Greases & liquids	15 or 17 kg, depending on product
Keg	Open or closed top	Greases & liquids	45 or 50 kg, depending on product
Drum	Closed top only	Liquid only	167 or 180 kg, depending on product
IBC	Intermediate bulk container (IBC)	Liquid only	800 or 900 kg, depending on product

STORAGE AND SHELF LIFE

- For best performance, Perlube and Vama lubricants should be stored indoors at <30°C (<86°F), and out of direct sunlight.
- While most Perlube and Vama products have no definitive shelf life – especially greases – it is recommended for consistency of performance that they are used within one year of the production date that is printed on product labels.
- If freezing occurs during transport or storage, allow the product to fully thaw before use. To speed thawing, the product can be heated to 50°C (122°F) until homogeneous and clear.
- Ultimately, if there is any doubt about the condition of your Perlube or Vama products, please contact Pyrotek.

Pyrotek

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USAGE INSTRUCTIONS

MANUAL/BATCH APPLICATION:

1. Clean the mould after any previous cast to remove excess lubricant, residues, and/or other debris.
2. Pour or transfer a small amount (approximately 1kg) of Perlube or Vama lubricant into a separate, clean container.
3. Prepare a clean paint roller or brush that will be used to apply the lubricant.
4. Apply a thin and even layer of Perlube or Vama to the full mould height or entire graphite surface.

Note: it is best to apply as close to the casting time as possible to avoid lubricant dripping from the mould when not in use.

PUMP/CONTINUOUS APPLICATION:

In continuous lubrication applications, the amount of Perlube or Vama that is required depends on the equipment style, alloy, and other casting variables. Below are estimated consumption rates per tonne of aluminium, based on common mould design styles:

- Aluminium Mould Bore – e.g., Wagstaff® Epsilon® or Conventional Ingot or Billet Moulds – 100 to 200 ml/t
- Graphite Bore, Oil Only – e.g., Wagstaff Numax® or Maxicast® – 40 to 100 ml/t
- Graphite Bore, Air and Oil – e.g., Wagstaff AirSlip®, Hycast® Gas Cushion® – 10 to 40 ml/t

GREASE LUBRICANTS

The following grease lubricants are available in Pails and Kegs.

Product Name & Base Chemistry		Product Description	Common Use(s)	Application Method	Cone Penetration (ASTM D217)
Vegetable (Biodegradable	Vama Al/ Rite 100	Soft, electro-polarized vegetable grease incorporating special additives for improved lubricity; opaque blue color; biodegradable.	Direct chill casting of billets and ingots; most alloys and cast lengths.	Typically applied manually in a thin, even layer using a brush or roller; lubricant should be applied to the entire mould height, just before the start of casting.	15-30 mm
	Vama Al/ Rite 200	Soft, electro-polarized vegetable grease incorporating special additives for improved lubricity; opaque red color; biodegradable; thicker texture than Vama Al/Rite 100.	Direct chill casting of billets and ingots, including 5xxx series alloys.		16-32 mm
Mineral-Vegetable	Vama Noval 25	Liquid grease of red color for easy identification on the casting mould; similar in texture to Perlube LIS 15R.	Direct chill casting of billets and ingots.		>60 mm
	Vama Noval 50	Liquid grease of deep red color for easy identification on the casting mould; thicker texture than Vama Noval 25; originally developed for casting of 3xxx series alloys.	Direct chill casting of billets and ingots of many alloys, including 3xxx and 5xxx series.		30-50 mm
	Perlube LIS 15R	Liquid grease originally developed for casting of aerospace alloys; incorporates both mineral and vegetable base oils; originally designed for hard alloys.	Direct chill casting of billets and ingots; originally designed for casting of 7xxx series alloys.		>60 mm
	Perlube 2000ES	Brown grease formed as a mixture of our renowned Perlube 500 casting oil and our robust Perlube 10 grease to create an effective and easy-to-apply mould lubricant for most alloys.	Direct chill casting of billets and ingots; most alloys and cast lengths; 5xxx alloys.		11–19 mm
Mineral	Perlube 10	Hard brown grease incorporating both electro-polarized vegetable oils and waxes; forms a robust grease for most conventional moulds and alloys.	Direct chill casting of billets and ingots; 5xxx series alloys.	Heat product up to 70°C (158°F) before applying with brush or roller.	3–11 mm

LIQUID LUBRICANTS

The following liquid lubricants are available in pails, kegs, drums, IBCs.

Product Name & Base Chemistry		Product Description	Common Use(s)	Application	Typical Viscosity, at 100°C (ASTM D7042)
Vegetable (Biodegradeable)	Perlube 40 Perlube 80	Low viscosity vegetable oils with similar performance to rapeseed, castor, or canola oils; 100% biodegradable; available in water-emulsifiable SOL versions.	Direct chill ingot and billet casting.	Typically delivered by pump and injectors.	8-12 mm^2/s 12-20 mm^2/s
	Perlube 250 Perlube 500	Medium viscosity, electro-polarized vegetable blend with greatly improved performance over generic vegetable oils; highly lubricious, thixotropic, and biodegradable; available in water-emulsifiable SOL versions.	Direct chill ingot casting of all alloys; compatible with Wagstaff® Epsilon, Hycast, and other ingot-mould styles.	Typically delivered by pump and injectors.	35-55 mm^2/s 80-105 mm^2/s
	Perlube 1500	High viscosity, electro-polarized vegetable blend with greatly improved performance over generic vegetable oils; highly lubricious, thixotropic, and biodegradable.	Direct chill ingot casting.	Typically delivered by pump and injectors.	190-250 mm^2/s
	Vama PNL 3	Thick electro-polarized vegetable blend of natural color, for many applications requiring high lubricity.	Direct chill billet casting; suitable for most alloys.	Typically applied manually in a thin, even layer.	350-400 mm^2/s
	Vama EP/Blue	Thick electro-polarized vegetable oil similar to Vama PNL 3 of blue color for easier identification during application.	Direct chill ingot and billet casting; suitable for most alloys.	Typically applied manually in a thin, even layer.	300-500 mm^2/s
Mineral-Vegetable	Perlube 2	High viscosity, electro-polarized vegetable-mineral blend with high lubricity, tackiness, and thixotropy; one of the oldest and widest-used Perlube recipes for continuous lubrication of cast ingots.	Direct chill ingot casting; compatible with Wagstaff® Epsilon and other ingot mould styles.	Either manual application in a thin, even layer or delivered by pump and injectors.	160-220 mm^2/s
Synthetic	Perlube 68 Perlube 150 Perlube 230	Synthetic chemistries with low carbon residue and high chemical stability; available in water-emulsifiable SOL versions.	Billet and ingot casting of all alloys; bottom-block, ingot mould preparation; Wagstaff® AirSlip®, Numax®, LHC®, and Hycast® Gas Cushion (GC)	Typically delivered by pump; lower viscosities can be sprayed.	8-13 mm^2/s 17-23 mm^2/s 24-30 mm^2/s

CUSTOM RECIPES OR NEW APPLICATIONS

Please contact Pyrotek if you feel that Perlube or Vama could be a good solution for your operation, and none of the standard products above meet your exact needs or process requirements. A custom recipe or blend of recipes may be possible.

Note: The physical and chemical properties listed represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice.

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