

DONNELLY BROS. INC.

MOLDING MACHINE REPLACEMENT PARTS

SCREWS, BARRELS, SCREW TIPS, END CAPS, TIE BARS, MOLD GREASE

OFFICES IN SC & MI

1-800-582-3748

SUBJECT: ALL PURPOSE GREASE - APG #2

Dear Injection Molder,

Thank you for your interest in our clear, non-melting PTFE (teflon type) extreme pressure All Purpose Grease (APG). It is SUPER CLEAN!

WHERE APG IS USED

APG was introduced to molders in August of 1982, and is now being used by over 1000 custom injection molders in the automotive, appliance, electrical and medical industries.

APG is being used in injection molding presses, molds (guide pins - slides & ejector pins), grinders, electric motors and RIM (resists isocyanate). Most of our customers use APG NLGI Grade #2 on their molds.

Other uses include aluminum molds, die casting dies and air cylinders.

MOLDS-THERMOPLASTICS - APG #2"

Because APG #2 stays in place and does not melt, it is beneficial in lubricating mechanical parts of molds. APG does not migrate and works well in constant metal temperatures of 180 °F to 200 °F. (Note: The plastic molding material itself might be 500 °F - 600 °F.) APG contains PTFE, which plates the metal with a one micron film thickness which reduces friction. The acceptance rate of APG for this use is high. (Some customers tap aluminum with APG (stops metal pickup).

"... BETTER THAN LUBRIPLATE..."

One customer with an 8-cavity die making turn signal indicators replaced Lubriplate with APG #2. His best production before die was 100,000 pcs, and sometimes reached 125,000 pcs. With APG #2, the customer consistently ran 165,000 pcs, and once even ran 210,000 pcs! (Note: At the 210,000 level, the vent holes plugged up, but there was no sign of lubricant failure).

" REDUCED WEAR ON PINS...GREASED DAILY..."

Another customer using APG #2 ran 13 million parts and measured only .0005" wear (on a 16 cavity mold). UNION CARBIDE CORP (MAY 1986)

APG #2 was tested in contact with highly stressed samples of two polymers: UDEL P-1700 polysulfone and Ardel D-100 polyarylate and found them innocuous in terms of any chemical attack. Union Carbide stressed their polymers to 4000 psi fiber stress and exposed them to APG #2 at 200 °F for 48 hours. (Copy of test report available.)[lost]

SAFETY APPROVAL & USDA STATUS

APG is approved by Ford, GM and Chrysler Toxicology Departments. The USDA Food Grade approval is H2. (APG can be used in a food plant, but not where intimate contact is possible.) All ingredients are H 1, except the thickener which is currently H2. Safety sheets are available upon request.

* LIMITATION: Not satisfactory for thermoset molds [see HT500]

CINCINNATI MILACRON APPROVAL \$PEC P-64 - INJECTION MOLDING PRESSES

CINCINNATI MILACRON has approved APG #2 (P-64) for use on their injection molding machines. In their "grease workeff" test, APG #2 (P-64) was cycled for 10,000 strokes. Apg#2 became slightly softer. However, in actual field use, we have found that APG #1 and APG #2 eventually **separate and clog** in small lube lines.

SLIDE APPLICATIONS - LESS GREASE NEEDED

In slide applications, such as lubricating tie bars, customers generally use 50 - 70% less grease with APG #2. Also, when grease yield is considered, the net cost of APG is comparable to conventional greases. APG is superior to its competition in .the following areas:

- Friction Reduction
- Ability to stay where applied
- Heat
- Non drip
- Water/Steam Resistant properties

In addition, APG coats metal with a one micron film of PTFE, which resists wiping away, which means 50% LESS GREASE REQUIRES 50% LESS LABOR.

WATER RESISTANCE - MILITARY TEST

APG #2 resists mixing with water to an extremely high degree. After 100,000 strokes in a "grease workeff" (Military Spec. G-10924) with 10% wt. water, the penetration value was virtually unchanged (+7) (grease softened). The appearance became slightly cloudy and the grease contained discrete droplets of water. (NOTE: APG is, however, subject to water blast out.)

AIR CYLINDERS

OUTSTANDING lubricant for air cylinders. APG #2 is mineral oil based. Check your seals for incompatibility.

I am confident APG #2 will be effective for you in your plant and look forward to working with you!

Regards,

William P. Donnelly

ALL PURPOSE GREASE

WITH

POLYTETRAFLUOROETHYLEN (PTFE) RESIN HAS PEAK TEMPERATURES OF -65°F TO 450~F

APG, extreme pressure lubricant, repels hot water and will not separate in dry heat applications. A FEW APPLICATIONS INCLUDE: Automated equipment, slide mechanisms, chain and gear drives, ball and roll bearings. Also excellent for use in plastics, diecasting, printing, paper and automation industries. Use where smooth running, clean looking equipment is desired. Use on ejector pins, tie bars, toggles, air cylinders, industrial equipment, air spool valves and air cylinders.

APG outlasts conventional greases by 50-100%, inhibits corrosion, reduces friction and cuts wear.

ADVANTAGES INCLUDE: Clean, odorless, biodegradable, USDA rated H2, 100% water resistant, wide temperatures ranges permit use in cold to hot environments, non-melting, contains no soaps, salts or metal based gellants. Also, APG lubricates with extremely thin film requiring 50-75% less grease on slide applications.

APPROVALS: CINCINNATI MILACRON SPECS P-72 (APG #1) & P-64 (APG #2)
TRABON - accepts APG #1 (EXCEPT failea on "MJ" feeder block applications - very small holes).

LIMITATIONS: APG works well in constant operating temperatures of approximately 180°F - 200°F.
ABOVE 200°F PROPERTIES FADE MORE RAPIDLY.
Not for automatic lubricators - generally small lines wilt clog.
Not for thermoset molds - constant temperature generally too high.

SPECIFICATIONS

Operation Temperature °F (peak)	-65 to 450°F	Water Resistance	
Base Oil Properties		500 hours (ASTM D-1264)3.3% washout	
SSU at 100 °F (ASTM D-2161)	475°F	Military Spec G-10924Chg. in penetration (+7)	
SSU at 210 °F (ASTM D-2161)	61.5°F	Effect on Copper	
Flash Point (STM D-92)	470°F	(ASTM D-1261)	None
Pour Point (ASTM D-97)	15°F	Oil Separation	
		365 days (ASTM D-1742)	None
		(FTM-781-B)	None
Work Penetration		Electrical	
60 Strokes (ASTM D-217)	290 CS	1R (ohm-cm at 100 Volts	1 x 1014
NLGI Number	2	Extreme Pressure Test	
Viscosity & Density		(four ball method)	
9ASTM D-1092, Base Fluid Viscosity)		1P 239/77 Mean Hertz Load	105 kg
Dropping Point		Color	Clear-White
(ASTM D-566)	Will not melt	Texture	Smooth, Buttery
Rust Test		Odor	• None
Inhibited-corrosion (ASTM D- 1743)	Pass	Fillers	None
Oxidation Test		Shelf Life	
Inhibited, psi 100 hours	0	Sealed Container	10 years
(ASTM D-942)		USDA RATING	H2
Evaporation Loss (ASTM D-972)	Less than 2%		

This material is non-irritating to skin, but may cause temporary discomfort if accidentally rubbed into the eyes. It is not a toxic substance as defined in Section 1500.3 of the Federal Hazardous Substance Act. Also, All Purpose Grease does not require special handling or storage procedures.

The data contained herein is based on information we believe reliable. We do not guarantee results obtained by others under different conditions and you should thoroughly test any application before commercialization. Recommendation of use of our products should not be taken as inducements so as to infringe on any patent.