

Grease Information Chart

(Includes: Stiffness, Additives, Gellants & Amount of Grease)

AMOUNT OF GREASE		Grease Mass/100,000 Units				Grease Cost per Device (in U.S.¢)	
		Grease Density				Grease Density	
Amount of Grease per Device (hemisphere dia. in mm)	Volume (cc)	1gm/cc		2gm/cc		1gm/cc	2gm/cc
		kg	(lb)	kg	(lb)	at \$22/kg (\$10/lb)	at \$220/kg (\$100/lb)
1	0.00026	0.026	(0.058)	0.052	(0.12)	0.00058¢	0.012¢
2	0.0021	0.21	(0.46)	0.42	(0.93)	0.0046¢	0.093¢
3	0.0071	0.73	(1.6)	1.4	(3.1)	0.016¢	0.31¢
5	0.033	3.3	(7.2)	6.6	(14)	0.072¢	1.4¢
10	0.26	26	(58)	52	(115)	0.58¢	12¢

COMMON SYNTHETIC GREASE GELLANTS		
Gellant	Advantages	Disadvantages or Issues
Paraffin Wax	Lower cost	Low melting point: low load/low friction only
Alkali Soap	Lower cost, water resistance, pumpability	Reactivity issues with some oils, metals
Organoclay	High loads, melting temp. > +250°C	Limited oil content/oil separation
Alkali complex soap	Water resistant, pumpability, low oil sep., melting temp. > +250°C	Reactivity issues with some oils, metals
Polyurea	Water resistant, pumpability, low oil sep., melting temp. > +250°C	Stability at low shear, storage hardening
Silica	Water resistance, low oil sep., very high melting temp.	Mech. instability with some base oils
PTFE	Lubricity, inertness, high melting temp. >300°C	Moderate loads only
Metal Oxide	Thermal conductivity, inertness, very high melting temp.	Limited oil content, oil separation

GREASE STIFFNESS		
NLGI Grade	Penetration (worked, 60x)	Analog (unworked)
000	445-475	Ketchup
00	400-430	Applesauce
0	355-385	Brown mustard
1	310-340	Tomato paste
2	265-295	Peanut butter
3	220-250	Vegetable shortening
4	175-205	Frozen yogurt
5	130-160	Smooth paté
6	85-115	Cheddar cheese spread

COMMON LUBRICANT ADDITIVES	
Additive Type	Capabilities
Antioxidant	Prolongs life of base oil
Antiwear (EP)	Chemically active protection of loaded metal surfaces
Antirust	Slows rusting of iron alloys
Anticorrosion	Slows corrosion of non-noble metals
Filler	Thermal/electrical conductivity, special physical properties
Fortifier (EP)	Solids burnish into loaded surface under extreme pressures
Lubricity	Reduces coefficient of friction, starting torque or stick/slip
Viscosity Index (VI)	Reduces rate of change of viscosity with temperature
Pour Point	Improves lower temperature limit
Dye	Visual/UV markers as inspection/assembly aids

