Grease Tear Sheet

Greasing Frequency: Rollers should ALWAYS be greased at least once every 2 hours
Purging: Grease each roller until new grease is extruding completely around the front seals and falling from the rear seal
Purging Frequency: Rollers should be purged AT LEAST once every 8 hours
Greasing Schedule: Keeps track of roller greasing

- Keep near your pellet mill
- Should be strictly enforced
- 3-Roll manual greasing example →

	A	B	C	D	E
1	Date	Name	Time of Greasing	Pumps per Roller 1, 2, 3	Purge Test (door MUST be open)
2	12/8/2011	Joe	8:45	20,20,20	No
3	12/8/2011	Joe	10:00	20,20,20	No
4	12/8/2011	Joe	11:00	33,28,36	Yes
5	12/8/2011	Joe	11:50	35,35,35	No

Volumetric Flow Meter: EVERY grease line/pump should include one. Make sure it is sized appropriately for grease flow

- Jacobs Corp recommends using SKF Grease Meter (Designation LAGM 1000E) for NLGI Grades 0-3

American Society for Testing and Materials (ASTM)

- All greases undergo ASTM testing. Test results are located on the grease's Technical-Data/Product Information sheet

Timken OK Load → ASTM D 2509: Measures the load carrying capability of the grease (Developed by Timken)
4-Ball Weld/Load → ASTM D 2596: Very similar test to Timken OK Load however this test was developed by ASTM
Viscosity Tests → ASTM D 445: Measures the viscosity of the grease's Base Oil at the given temperature
Viscosity Index → ASTM D 2270: Kinematic viscosity variation. Higher values = less viscosity change = better grease
Drop Point → ASTM D 2265: The temperature that the grease changes from semi-solid to liquid state
Water Washout → ASTM D 1264: Measures greases resistance to water/moisture. Less washout = longer lasting seal
NLGI Grade → ASTM D 217: Classifies the relative thickness of the grease. Most Pellet Mill Rollers require NLGI 2

General Grease Information

- Greases are comprised of 3 main components → Base Oil, Thickener (Soap), & Additive Package

Thickener: Acts like a sponge, it holds together the Base Oil and Additives, and it adds value to their performance
Base Oil: Provides the protective film barrier between the bearing's rollers and raceway
Additive Package: Further increases the load carrying capability, run-out resistance, & other performance characteristics

High Temperature vs. Food Grade: High quality food grade grease will deliver the same load carrying capability as high temperature grease. However food grade grease will require more consumption volume due to easier/faster run-out.

Choosing the best Food Grade Grease...Performance First!
High Quality: $710 / 120lb keg = $5.92/lb * 15 lbs/day * 260 days/year = $23,088 / year
Low Quality: $560 / 120lb keg = $4.67/lb * 20 lbs/day * 260 days/year = $24,284 / year + More likely roll failure cost

PRO-ROLL
Food Grade Grease

Product Number	125146	Test Performed
Color	White	
Texture	Smooth, Tacky	
Thickener	Overbased Calcium Sulfonate	
NLGI Grade	2	ASTM D 217
Worked Penetration	265-295	ASTM D 217
Change in Pen after 100,000 strokes	< 20	
Roll Stability, % change	< 3%	ASTM D 1831
Drop Point, °F	550+	ASTM D 2265
Viscosity @ 40°C, cSt	228+	ASTM D 445
Viscosity @ 100°C, cSt	19.6	ASTM D 445
Viscosity Index	98	ASTM D 2270
4-Ball EP Load, kg	620	ASTM D 2596
Timken OK load, lbs	60	ASTM D 2509
Water washout @ 175°F, % wt	2	ASTM D 1264
Copper Corrosion	Pass	ASTM D 4048
Rust Test	Pass	ASTM D 1743

C = Compatible
I = Incompatible
B = Borderline

	Aluminum Complex	Barium Complex	Calcium Stearate	Calcium 12 Hydroxy	Calcium Complex	Calcium Sulfonate	Clay (Non-Soap)	lithium Stearate	Lithium 12 Hydroxy	Lithium Complex	Polyurea Conventional	Polyurea Shear Stable
Aluminum Complex		I	I	C	I	B	I	I	I	C	I	C
Barium Complex	I		I	C	I	C	I	I	I	I	I	B
Calcium Stearate	I	I		C	I	C	C	C	B	C	I	C
Calcium 12 Hydroxy	C	C	C		B	B	C	C	C	C	I	C
Calcium Complex	I	I	I	B		I	I	I	I	C	C	C
Calcium Sulfonate	B	C	C	B	I		I	B	B	C	I	C
Clay (Non-Soap)	I	I	C	C	I	I		I	I	I	I	B
lithium Stearate	I	I	C	C	I	B	I		C	C	I	C
Lithium 12 Hydroxy	I	I	B	C	I	B	I	C		C	I	C
Lithium Complex	C	I	C	C	C	C	I	C	C		I	C
Polyurea Conventional	I	I	I	I	C	I	I	I	I	I		C
Polyurea Shear Stable	C	B	C	C	C	C	B	C	C	C	C	