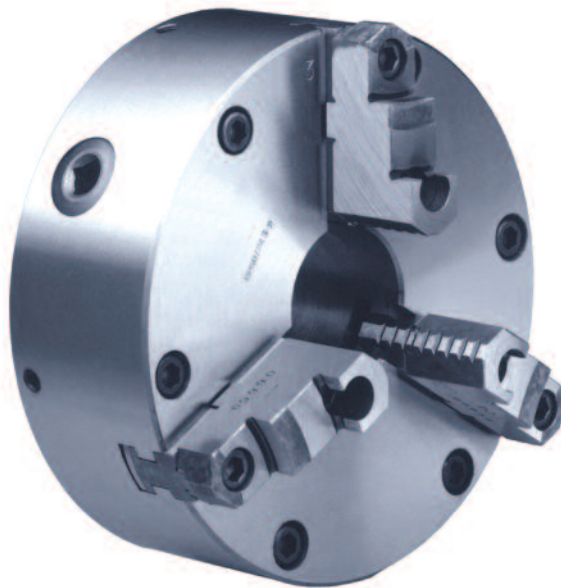


**Pratt Burnerd America**

# **Setrite Self Centering Scroll Chucks**

5" (125mm) - 15" (400mm)



**Important: Read this manual before using this product:**

The Setrite chuck is a durable, steel bodied self centering chuck with a concentricity adjustment feature built into the body. The front body can be re-aligned in relation to the machine spindle using the various adjusting screws to the rear of the chucks periphery, workpieces can be trued to within a repeat concentricity of 0.013mm or for optimum accuracy (0.005mm) each component can be trued individually. All components of the chucks are manufactured from steel, with the scrolls being manufactured in an exceptionally tough alloy steel and are hardened and ground for accuracy and durability.

**Pratt Burnerd America**, 3977 Emerald Dr., Kalamazoo, MI 49001

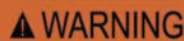
Phone 800-253-0820, Fax No. 269-384-3201 Web Page [www.prattburnerd.com](http://www.prattburnerd.com) e-mail [info@prattburnerd.com](mailto:info@prattburnerd.com)

For ensuring the safe and correct use of this product, please read and pay attention to all the instructions and keep this manual so that it can be retrieved whenever needed.

## 1. Safety Alert Symbols

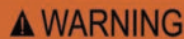


## 2. Qualified Operators



Pratt Burnerd clamping equipment may be set up, operated and maintained by those only who are trained to do so. Persons handling clamping equipment who do not possess the necessary training run the risk of potential injury from the clamping motion and the forces generated.

## 3. Maximum Permitted Speed



The maximum permitted speed may only be run at maximum permitted actuation force and using a perfectly operating chuck. For maximum permitted speed ratings see page 3.

## 4. Exceeding The Permitted Speed



The centrifugal forces caused by excessive rotational speeds may result in individual parts of the clamping device becoming detached or the work piece being ejected, with the potential to cause harm to those in the close vicinity, considerable damage to the machine and the chuck itself. The maximum speed and the operating force/pressures are embossed on the body and may not be exceeded for the reasons mentioned above.

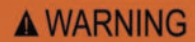
## 5. Clamping Range



The maximum clamping range may not be exceeded, the lack of sufficient engagement between the clamping jaw and the component part could cause a negative effect on machining, work piece ejection or injury to the operator. For clamping ranges see page 4.

To check the chucking force, it is recommended using the Pratt Burnerd Radio Frequency Grip meter. For optimum performance the clamping force should be checked at regular intervals, the intervals are dependent on the application, for more information contact Pratt Burnerd.

## 6. Mounting



Clean any excess protective grease from the chuck and inspect for any damage which may have occurred in transit. Before mounting the chuck ensure the machine spindle is running true by checking the chuck locating faces both radial and axial directions using a dial indicator as shown in figure 1. The maximum error should not exceed 0.005mm full indicator movement (FIM). Also check the mounting faces are clean and undamaged. If the chuck is supplied with a separate mounting adaptor, this should match the machine spindle and should be secured to it using the fasteners provided. For torque values see page 3.

Check the chuck mounting spigot and face for true running (Fig 2).

The adaptor should run within 0.01mm FIM on the Face and 0.02mm on the diameter. Wipe the chuck location faces clean and mount the chuck to the spindle and adaptor using screws provided. It is good practice to check the chuck's outside diameter and face for the true running (Fig 3). The chuck may be assessed for gripping accuracy (Fig 3) by using an accurate test bar gripped in the chuck and the readings compared with the particular chucks accuracy standard.

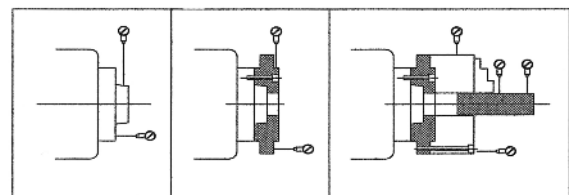


Figure 1

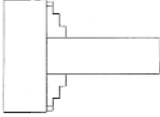
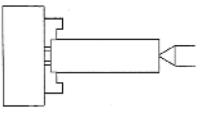
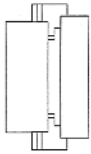
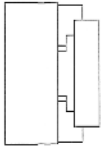

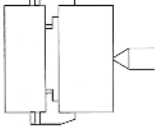
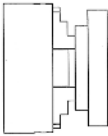
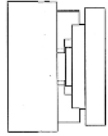
Figure 2

Figure 3

## 7. Operating

### ▲ WARNING

In order to ensure safe clamping of the work piece to withstand the machining forces occurring and prevent injury, the correct loading practices below should be adhered to:

Wrong	Right
<p>Work piece projected length too great relative to chuck size.</p> 	<p>Support Workpiece between centers.</p> 
<p>Chucking Diameter too great.</p> 	<p>Use a larger chuck.</p> 
<p>Workpiece too heavy and chucking step too short.</p> 	<p>Support between centers and extend chucking step.</p> 
<p>Chucking diameter too small.</p> 	<p>Chuck using greatest possible chucking diameter.</p> 

The illustrated examples do not cover all the possible dangerous situations. It is the responsibility of the user to recognize possible sources of danger and to adopt the necessary measures. Despite all precautionary measures, an element of risk can not be excluded.

## 8. Maintenance

### ▲ WARNING

The reliability of the clamping equipment can only be ensured if the maintenance guidelines below are strictly observed. Failure to observe these instructions will result in loss of grip and could cause an accident.

- All chucks should be checked regularly for wear, cracks and accident damage, the following cause breakages and should be avoided:
  - Do not extend the crosspiece of the chuck key
  - Do not use a power wrench to open & close the chuck
  - Do not use a badly fitting operating key
  - Do not use the pinion socket to remove the chuck from the spindle.
  - Do not leave the key in the chuck when the lathe is started.
  - Do not start the lathe until all is clear. Collision between chuck and lathe will almost certainly damage both.
  - Do not use the chuck where as the work piece diameter is too large resulting in the jaws projecting beyond the chuck body. Use the jaws in the correct position. Do not attempt to insert chuck jaws into the wrong jaw way. The jaws and jaw ways are numbered correspondingly.
  - Do not tamper with the chuck. If inaccuracy is found, check the spindle nose or adaptor plate for true running and make sure there is no dirt of foreign matter between the mounting faces.
  - If in doubt, do not use the chuck, contact Pratt Burnerd
- Lubricate the chuck at regular intervals using Pratt Burnerd chuck lubricant PB160Z, Refer to material data sheet for all information referring to PB160Z. Do not use any other brand of lubricant. To obtain maximum benefit, the chuck parts should be cleaned thoroughly with a suitable cleaning fluid before applying the lubricant with a clean brush.
- If spares are fitted to the chuck, ensure these are supplied by Pratt Burnerd, if screws are loosened or replaced, defective fastening or replacement may lead to a damage of the machine or injury to the operator. The torque table below should be used when retightening any fasteners Ensure that the chuck has been tested before reusing.
- Use the Pratt Burnerd Radio Frequency Gripmeter to check the static and dynamic grip.
- Pratt Burnerd International will advise on any problem concerning maintenance.

## 9 Technical Information

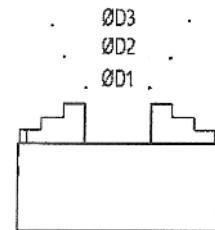
**▲ WARNING**

Chuck Size in (mm)	Max Input Torque lbs/f (Nm)	Total Force lbs/f (KN)	3 Jaw Maximum	Approx Weight 3 Jaw Kg	6 Jaw Maximum	Approx Weight 3 Jaw Kg
4.92" (125)	40 (52)	5,400 (24.1)	5000	6	3600	7
6.3" (160)	55 (75)	7,500 (33.4)	4900	12	3500	12
7.87" (200)	85 (115)	10,500 (46.8)	4200	21	3000	22
9.89" (250)	115 (156)	12,500 (55.9)	3300	32	2400	35
12.4" (315)	140 (203)	15,000 (66.9)	2300	51	2000	53
15.74" (400)	140 (203)	16,500 (73.5)	2000	66	1500	93

## 10. Clamping Ranges 1 Piece Jaws

**▲ WARNING**

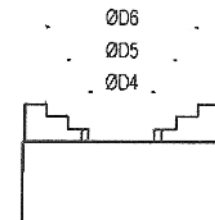
Chuck size (mm)	D1	D2	D3	D4	D5	D6
125	1.5-32	28-78	70-120	—	38-84	78-124
160	1.5-56	42-98	84-152	—	48-106	90-160
200	2-76	56-126	115-186	—	54-128	114-200
250	3-114	60-168	148-250	—	64-162	115-250
315	6-120	70-184	184-298	—	76-190	190-304
400	10-187	90-268	223-400	—	92-270	224-406



Inside Jaws

### 2 Piece Jaws

Chuck size (mm)	D1	D2	D3	D4	D5	D6
125	1.5-48	32-80	72-118	5-51	48-94	90-136
160	1.5-62	42-102	98-158	10-70	48-108	108-168
200	2.5-68	50-116	106-172	16-82	64-130	122-188
250	4-106	66-164	124-226	16-120	84-186	146-248
315	6-126	70-190	146-266	18-138	98-218	178-298
400	8-168	110-270	178-338	20-180	106-266	176-336



Outside Jaws

## 10. Tightening Torque Ranges (FT-LBS)

**▲ CAUTION**

Screw	M2	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M24	M30
Skt Head Cap	<1.0	1-2	1-5	5-10	10-20	20-30	40-60	40-60	80-100	80-100	80-100	80-100	80-100	100-120
Skt C'sunk	—	1-2	1-5	5-10	10-20	20-30	40-60	40-60	—	80-100	—	80-100	80-100	—
Button Head	—	1-2	1-5	5-10	10-20	20-30	40-60	40-60	—	—	—	—	—	—
Skt Set Shol.	—	—	—	5-10	10-20	20-30	40-60	40-60	—	80-100	—	80-100	80-100	—

PBA Chuck Model No.	PBI Chuck Model No.	A Chuck Size Style	A Hard Top Jaw Set	B Base Jaw Set	C Pinion Gear	F Scroll Gear	G Chuck Mounting Bolts Size	H Adjusting Screw	I Hardened Pin	J Pinion Pin	K Chuck Wrench	L Locking Screw	Soft Top Jaws Each
0515400	9219-01351	5" 3 Jaw	8210-13602 O.D.	8210-13603 I.D.	2210-13350	8210-13330	1/4-20x3.0"	DG0.375UNF750	NR	2210-13356	2210-13395	NR	8210-13606*
0516400	9219-01356	5" 6 Jaw	8260-13602 O.D.	8260-13603 I.D.	2210-13350	8210-13330	1/4-20x3.0"	DG0.375UNF750	NR	2210-13356	2210-13395	NR	8260-13606*
0625300	9219-01360	6" 3 Jaw	8210-17608	8210-17607	2210-17350	8210-17330	1/4-20x3.0"	CP0.375UNF1.00	2219-00364	2210-13356	2210-17395	NR	2210-17609
0626300	9219-01365	6" 6 Jaw	8260-17608	8260-17607	2210-17350	8210-17330	1/4-20x3.0"	CP0.375UNF1.00	2219-00364	2210-13356	2210-17395	NR	2210-176090P
0825300	9219-01370	8" 3 Jaw	8210-20608	8210-20607	2219-00372	8210-20330	3/8-16x3.5"	CP0.375UNF1.00	2219-00364	2310-20356	2218-20208	M10X10	2210-20609
0826300	9219-01375	8" 6 Jaw	8260-20608	8260-20607	2219-00372	8210-20330	3/8-16x3.5"	CP0.375UNF1.00	2219-00364	2310-20356	2218-20208	M10X10	2210-206090P
1025300	9219-01380	10" 3 Jaw	8210-25608	8210-25607	2210-25350	8219-01382	7/16-14x3.25"	CP0.375UNF1.00	2219-00383	2310-20356	2218-25208	M10X10	2210-25609
1026300	9219-01385	10" 6 Jaw	8260-25608	8260-25607	2210-25350	8219-01382	7/16-14x3.25"	CP0.375UNF1.00	2219-00383	2310-20356	2218-25208	M10X10	2210-256090P
1225300	9219-01390	12" 3 Jaw	8210-32608	8210-32607	2210-32350	8210-32330	1/2-13x3.25"	CP0.375UNF1.00	2219-00383	2310-20356	2218-32208	M10X10	2210-32609
1226300	9219-01395	12" 6 Jaw	8260-32608	8260-32607	2210-32350	8210-32330	1/2-13x3.25"	CP0.375UNF1.00	2219-00383	2310-20356	2218-32208	M10X10	2210-326090P
1525300	9219-01400	15" 3 Jaw	8210-40608	8210-40607	8270-40350	8219-01403	5/8-11x3.75"	CP0.625UNF1.00	2219-00383	2310-20356	8271-40385	M10X10	2210-386609
1526300	9219-01405	15" 6 Jaw	8260-40608	8260-40607	8270-40350	8219-01403	5/8-11x3.75"	CP0.625UNF1.00	2219-00383	2310-20356	8271-40385	M10X10	2210-286090P

**Note:** 5" Chuck use Solid I.D and O.D Jaws

\*5" Chuck use soft solid jaws and are sold in sets

When Ordering spares please have the Chuck Model number available located on the Chuck face.

**Contact** Pratt Burnerd America, 3977 Emerald Dr., Kalamazoo, MI 49001

Phone 800-253-0820, Fax No. 269-384-3201 Web Page [www.prattburnerd.com](http://www.prattburnerd.com) e-mail [info@prattburnerd.com](mailto:info@prattburnerd.com)

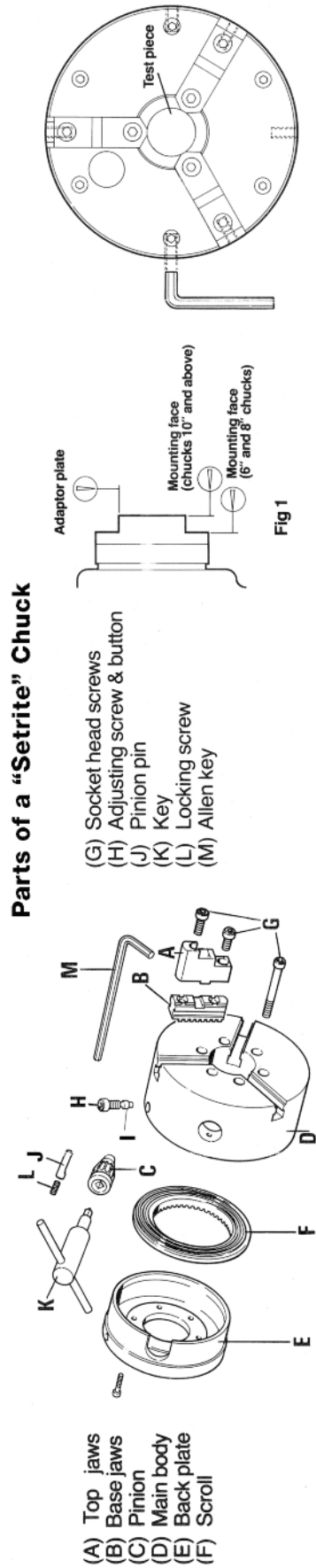


Fig 2

Fig 1



## 14. The Setrite Feature

Pratt Burnerd power chucks are manufactured to the highest tolerances in accordance with all accepted international standards specifications. Indeed, all sizes of Pratt Burnerd power chucks will repeat to within 0.025mm however the absolute accuracy with which a chuck can hold and rotate a component depends in part on the interface between the chuck and spindle nose.

The Pratt Burnerd Setrite feature has been designed to compensate for any inaccuracy which may be introduced in mounting the chuck and spindle nose adaptor.

At the rear of the chuck body periphery there are three small cap screws (six on chucks of  $\text{\O}380\text{mm}$  and above) which control float between the chuck body components or between the chuck and spindle nose adaptor.

The Setrite feature is simple to use, for direct mounting chucks, the chuck should be offered up to the spindle nose in accordance with the instructions on page 2, ensuring that all mating surfaces are thoroughly cleaned. The through mounting bolts should be made hand tight. Check the run out on the chuck periphery using a suitably position dial indicator. Adjustment of the Setrite screws will bring the chuck true on the spindle nose. The through mounting bolts should then be fully tightened.

For chucks with separate adaptors, first mount the adaptor to the spindle nose observing all the usual precautions detailed in the mounting section of this manual. The mounting bolts should be fully tightened. Offer the chuck up to the adaptor, insert the through mounting bolts and tighten them by hand. Adjust the Setrite screws to obtain optimum accuracy and fully tighten the mounting bolts as before.

Once set, the Setrite screws will require no further adjustment unless the chuck is removed from the spindle, when the above procedure should be repeated to re-true the chuck.

**▲ CAUTION**

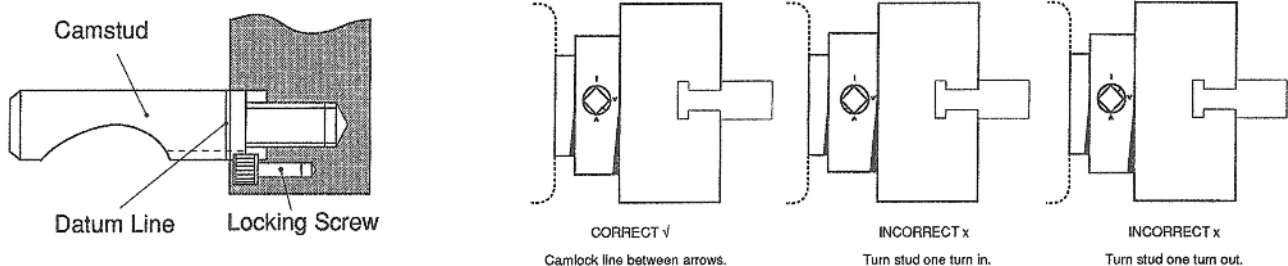
## 15. Fitting Camstuds to Camlock Mount Chucks

Chucks for direct mounting to lathes with camlock mounts are now delivered with the camlock studs packed separately within the chuck case. This reduces the risk of damage in transit to both chucks and studs. The following notes are offered guidance in assembling the studs to the chuck.

Screw each camstud into the mounting holes provided until the datum line is as close as possible to the rear face without being below the surface and the screw head cutout in the line with the locking screw hole.

Ensure that the chuck and spindle nose tapers are clean and offer the chuck up to the spindle. When in position, tighten each of the spindle cams in turn, ensuring the datum line on each cam is between the arrows on the spindle nose. If any do not tighten within the limits, remove the chuck and adjust the camlock studs as required. When all cams lock within the marked limits, remove the chuck and insert the locking screws beside each cam lock stud. Remount the chuck.

Remember once a chuck has been adjusted to a spindle nose, inscribe a reference mark so that each time it is removed from the machine, it may be replaced in the same position. If the chuck is mounted on a different machine from that which it has been adjusted, the above procedure should be repeated.



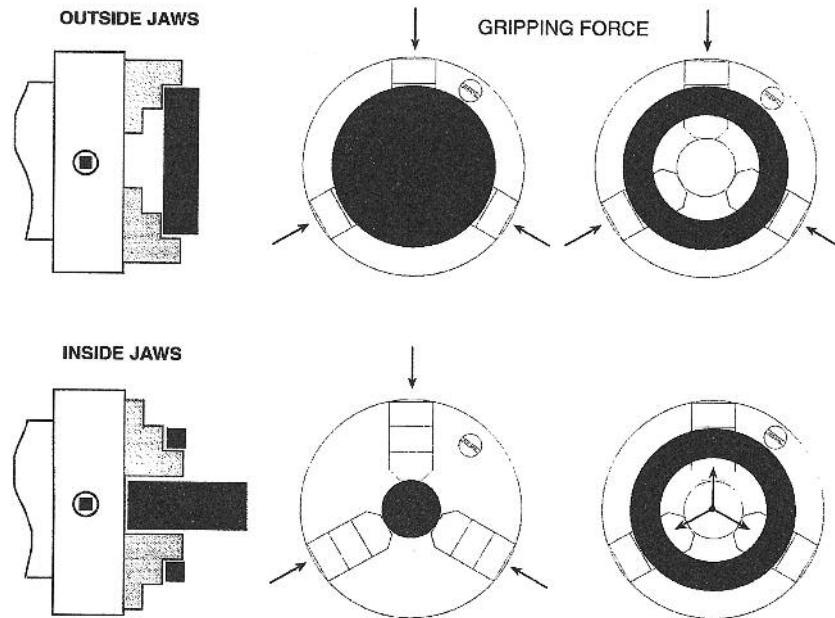
## 15. Inside or Outside Jaws

The most common misunderstanding in the chucking world is the terminology of inside and outside jaws for self centering chucks, a point which appears to have caused confusion since chucking was introduced and still does.

OUTSIDE jaws are designed only to grip OUTSIDE components, usually of larger diameters.

INSIDE jaws are designed to grip the INSIDE diameter of a ring of cylinder but will also grip the outside diameter of bar material which is, by far, the most common application and complicates the terminology.

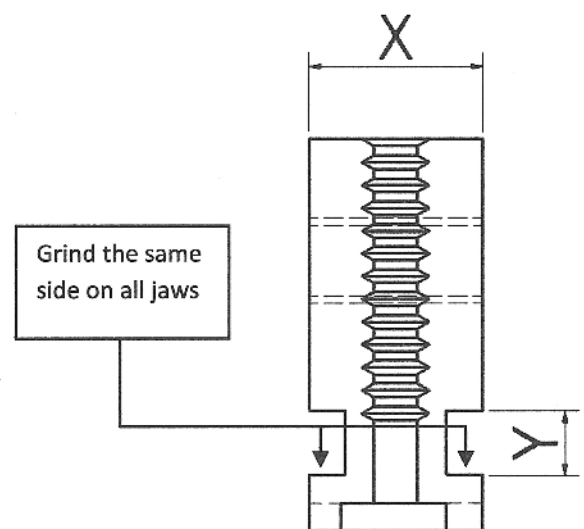
To simplify:



## 16. Fitting Spare Jaws

Spare jaws are manufactured to allow for some degree of wear which may have taken place in the chuck, therefore are left slightly oversized on the width X of the jaw and undersize on the width Y of the tenon and it is possible that a minor degree of fitting may be required to obtain the correct fit of the jaw. When fitting scroll jaws, the width of the tenon slot Y should be ground to size by removing metal from one side of each tenon slot. Always grind the corresponding side of each slot in order to preserve the accuracy of the height of the stepped platform faces. Although ground on the gripping faces as accurately as possible, spare jaws will not provide the accuracy of the original set which were ground in the chuck. To obtain original standards of accuracy, the gripping faces and platform steps must be ground in the chuck. It is necessary to remove all backlash between the jaw teeth and scroll head.

**▲ CAUTION**



**Pratt Burnerd America.**  
 3977 Emerald Dr. Kalamazoo, MI.  
 (800) 253-0820 FAX (269) 384-3201

**MATERIAL SAFETY DATA SHEET**  
**CHEMTREC (800) 424-9300 (24HR)**

<b>PRODUCT TRADE NAME:</b>	Pratt Burnerd Chuck Lubricant	<b>PRODUCT CODE: PB160Z</b>
EFFECTIVE DATE:	JANUARY 1, 2001	PB10LB
MANUFACTURED BY:	HUSK-ITT Corporation	PAGE 1 OF 2

THIS MATERIAL SAFETY DATA SHEET CONTAINS ENVIRONMENTAL, HEALTH AND TOXICOLOGY INFORMATION FOR YOUR EMPLOYEES. PLEASE MAKE SURE THIS INFORMATION IS GIVEN TO THEM. IT ALSO CONTAINS INFORMATION TO HELP YOU MEET COMMUNITY RIGHT-TO-KNOW/EMERGENCY RESPONSE REPORTING REQUIREMENTS UNDER SARA TITLE 111 AND MANY OTHER LAWS. IF YOU RESELL THIS PRODUCT, THIS MSDS MUST BE GIVEN TO THE BUYER OR THE INFORMATION INCORPORATED IN YOUR MSDS.

DOT HAZARDOUS CLASSIFICATION: NOT REGULATED GREASE OR OIL - N.O.S.  
 NFPA HEALTH HAZARD: 1 FLAMMABILITY: 1 REACTIVITY: 1 PERSONAL PROTECTION: B

**SECTION 01 - HAZARDOUS INGREDIENTS**

IF PRESENT, IARL, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE 111, SECTION 313 ARE IDENTIFIED IN THIS SECTION.

	CAS NUMBE	TLV	PEL	%
<b>(NON HAZARDOUS) COMPONENTS</b>				
PETROLEUM OILS	64741-96-4	N/E	N/E	60-70
	64742-62-7	N/E	N/E	60-70
LITHIUM HYDROXYSTEARATE	7620-77-1	N/E	N/E	5-10
MOLYBDENUM DISULFIDE	1317-33-5	N/E	N/E	15-25
<b>PROPRIETARY COMPONENTS</b>				
	<b>N.J.T.S.R.N.</b>			
	80100362-5009P			< 1.0

**SECTION 02-PHYSICAL DATA**

WATER SOLUBILITY. . . . . NIL	BOILING POINT, F °. . . . . N/A
SP, GRAVITY. . . . . 1.02	MELTING POINT, F°. . . . . N/A
APPEARANCE & COLOR . . . . . DARK,PASTE LIKE	VOLATILE BY VOLUME, %. . . . . NONE
ODOR . . . . . NONE	VAPOR PRESSURE . . . . . N/A
EVAPORATION RATE . . . . . N/A	VAPOR DENSITY . . . . . N/A

**SECTION 03-FIRE AND EXPLOSION HAZARDS**

FLASH POINT:(ASTM D92) C.O.C. 450°F UPPER FLAMMABLE LIMIT: N/D LOWER FLAMMABLE LIMIT: N/D

EXTINGUISHING MEDIA: DRY CHEMICAL, WATER FOG, FOAM, CARBON DIOXIDE, SAND/EARTH  
 SPECIAL FIRE FIGHTING PROCEDURES: TREAT AS OIL FIRE: USE SELF-CONTAINED BREATHING APPARATUS. UNUSUAL FIRE & EXPLOSIVE HAZARDS: NONE



**SECTION 04-ENVIRONMENTAL AND DISPOSAL INFORMATION**

ACTION TO BE TAKEN FOR SPILL/LEAKS: Stop flow, scrape, wipe, mop up, or absorb with diatomaceous earth or other inert material. Store in appropriate container for disposal.

DISPOSAL METHOD: Disposal should be in compliance with federal, state, and local laws.

**SECTION 05-HEALTH HAZARD DATA**

CARCINOGENS: No carcinogens present

ROUTE OF ENTRY: Ingestion

EFFECTS OF OVEREXPOSURE: May cause irritation to eyes and skin on sensitive individuals.

EMERGENCY FIRST AID PROCEDURES:

EYES: Flush with water for at least 15 minutes.

SKIN: Wash with soap and water. See physician if irritation persists.

INHALATION: Remove to fresh air. See physician if irritation persists.

ORAL: Call a physician. Do not induce vomiting. Keep warm.

ADDITIONAL: Prolonged or repeated contact may produce mild skin irritation and inflammation.

Personnel with pre-existing skin disorder should avoid contact.

**SECTION 06-REACTIVITY DATA**

STABILITY: Stable

INCOMPATIBILITY: Strong oxidizing agents, welding.

POLYMERIZATION: Will not occur

THERMAL DECOMPOSITION: Carbon Monoxide, Carbon Dioxide, Metallic and Sulfur Compounds

CONDITIONS TO AVOID: Do not heat above flash point.

**SECTION 07-SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION: Normally not needed.

GLOVES PROTECTION: Neoprene or nitrile rubber gloves recommended.

EYE PROTECTION: Approved safety glasses or goggles

OTHER PROTECTION: Chemically resistant boots and apron recommended.

WORK/HYGIENIC PRACTICES: Use standard methods

**SECTION 08-SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION**

Avoid storage near open flame or other sources of ignition. Spills may cause slippery floors. Proper footwear required. Remove contaminated clothing and launder before reuse. Wash hands with soap and water before eating, drinking or smoking. Discard contaminated leather gloves and shoes.

The above information is based on the data of which we are aware and believed to be correct as of the date hereof. Since the information contained herein may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modification of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his/her own determination of the suitability of the material for his/her particular purpose.

May be used to comply with OSHA'S Hazard Communication Standard 29 CFR 1910.1200. Standard must be consulted for specific requirements.

N/D - Not Determined    N/A - Not applicable    < - Less Than    > - Greater Than

MSDS214.DOC