

MATERIAL SAFETY DATA SHEET

66-206

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

Valve Grinding
Oil #34253

SECTION I

MANUFACTURER'S NAME Fuchs Oil Company		EMERGENCY TELEPHONE NO. (201) 231-3667
ADDRESS (Number, Street, City, State, and ZIP Code) P.O. Box 596, Somerville, New Jersey 08876		
CHEMICAL NAME AND SYNONYMS Cutting Oil		TRADE NAME AND SYNONYMS Garia # S
CHEMICAL FAMILY Hydrocarbon	FORMULA Spec 5952	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
	0		BASE METAL	0	
	0		ALLOYS	0	
	0		METALLIC COATINGS	0	
	0		FILLER METAL PLUS COATING OR CORE FLUX	0	
	0		OTHERS	0	
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
None Known					

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H ₂ O=1)	0.91
VAPOR PRESSURE (mm Hg.)		PERCENT. VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ = 1)	
SOLUBILITY IN WATER	Insol.	Viscosity at SSU @ 100°F	150 - 170
APPEARANCE AND ODOR	Cloudy, light brown liquid, slight odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	320 - 340°F C.O.C.	FLAMMABLE LIMITS	Low	High
EXTINGUISHING MEDIA	Dry chemical type preferred			
SPECIAL FIRE FIGHTING PROCEDURES	None special			
UNUSUAL FIRE AND EXPLOSION HAZARDS	None unusual			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
 Vapor - not established Oil Mist - 5 mg/m³

EFFECTS OF OVEREXPOSURE
 Pulmonary irritation possible. Defatting action on skin. Prolonged or repeated contact may cause skin disorders.

EMERGENCY AND FIRST AID PROCEDURES
 Eyes - Flush with water for at least 15 minutes. Skin - Remove oil by wiping or applying waterless hand cleaner, followed by washing with soap and water. Remove all contaminated clothing. Ingestion - Induce vomiting if conscious and consult medical personnel.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Heat and mist formation: Excessive heat
INCOMPATIBILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS CO, CO ₂ , SO _x , and oxygenates can be formed during combustion.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
 Absorb with clay, diatomaceous earth, or other inert material.

WASTE DISPOSAL METHOD
 Controlled burning in compliance with local regulations or bury in approved landfill.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) NIOSH - approved respirator to avoid exposure to hot vapor or mist		
VENTILATION	LOCAL EXHAUST As required to prevent exposure to vapor or mist.	SPECIAL
	MECHANICAL (General)	OTHER
PROTECTIVE GLOVES Oil resistant (rubber)	EYE PROTECTION Goggles if oil is being sprayed or splashed.	
OTHER PROTECTIVE EQUIPMENT Appropriate clothing to avoid skin contact.		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
 Avoid breathing oil mist and vapors. Minimize skin contact. Airborne mist should be kept substantially below TLV for oil mist.

OTHER PRECAUTIONS
 Launder contaminated clothing before using. Discard leather goods if they cannot be decontaminated. Wash before eating or smoking.

FUCHS OIL CORPORATION

PRODUCT INFORMATION
DATA SHEET



ROUTE 202-208 NORTH, P O BOX 598, SOMERVILLE, N.J. 08876 • TELEX 833-449

TELEPHONE (201) 231-3667/3664

Trade Name:

Garia S*

Designation:

Cutting Oil

Description:

Garia S* is a general purpose, sulfurized mineral oil and is used for turning, drilling, threading, and tapping of steels of good machinability.

Characteristics:

<u>Test</u>	<u>Typical Properties</u>
Gravity, API @ 60°F	23 - 25
Color, ASTM	2.0 - 3.0
Pour Point, °F	-20/-35
Flash, C.O.C., °F	320 - 340
Viscosity, ssu @ 100°F	155 - 165
Viscosity, ssu @ 210°F	41 - 43
Viscosity, cst @ 40°C	30.6
Total Sulfur, %W	1.2 - 2.0
Active Sulfur, %W @ 200°F	0.7 - 0.9
Active Sulfur, %W @ 400°F	0.7 - 0.9
Copper Corrosion @ 212°F	4

* Registered Trade Name of Shell Oil Company

The information given here is based on the best data available on the product. It is given in good faith but nothing stated in this bulletin is to be taken as a warranty, expressed or implied, regarding the accuracy of the information of the use of our product.

Metal Working Lubricants

Cutting and Grinding Oils

All machining operations, in some way, bring about a change in the size and shape of a piece of metal or other material commonly referred to as a "workpiece." These changes are made through the use of a variety of tools, such as: drills, forming tools, broaches, taps, grinding wheels and belts, etc. These operations result in extremely high pressures and temperatures at the interface of the tool and workpiece.

Cutting fluids are used in machining operations to improve tool life, surface finish and to allow faster production rates. These fluids must perform four basic functions in the various machining operations. These are:

1. Lubricate — Provide lubricity and reduce the friction between the tool and the workpiece.
2. Cool — Dissipate the heat generated between the tool and workpiece and by the plastic deformation that occurs in forming the chip in the workpiece ahead of the tool.
3. Provide chemical activity or anti-weld — As the cutting tool cuts through the workpiece, small particles of metal from the chip can weld themselves to the face of the tool. Should this continue, it will result in what is called a "built-up edge", causing poor surface finish and reduced tool life. This can be controlled with the use of sulfur and/or chlorine additives in oil.
4. Wash away chips — The oil must provide a washing action to clear chips from the work area. This function varies in importance with the various machining operations. As an example, this is very important in boring, drilling, gun drilling and trepanning operations.

Although the current economics of manufacturing and distributing Shell metal working oils has largely restricted their availability to the east coast, the subject is sufficiently important to be included in the Lubricants Guide.

Following is a description of the various types of Shell cutting oils and recommendations for their applications. Such recommendations, while in accordance with general industry practice and reflecting with the consensus of professional engineering groups, should be considered only as a general guide. Experience best serves to identify the particular requirements of a machining operation which must be considered in order to recommend the best product.

Shell cutting oils consist of five different types:

1. Straight Mineral Oil:
PELLA® Oil A
CARNEA® Oil 22
2. Transparent Chlorinated-Fatty Oil Blend:
MACRON® Oil M
3. Transparent Active-Sulfurized oil, with or without fats and chlorinated compounds:
GARIA® Oils
SHELLSPEED® Oils
4. Dark Active-Sulfurized oil, with or without fats and chlorinated compounds:

FENELLA® Oils

5. Water-Soluble (emulsifiable) Oils:

DRUMUS® Oils

LO-FOAM Oil

The PELLA and CARNEA oils are straight mineral oils used in metal cutting operations to provide cooling and some lubricity to help reduce friction caused by the chip rubbing over the tool as well as washing action but are limited to use on soft, free-cutting metals like aluminum, magnesium and brass.

PELLA Oil A — A very low viscosity "mineral seal" oil used for working aluminum and magnesium and for diluting the heavier "active" cutting oils where a large reduction in viscosity with a minimum reduction in chemical activity is desired. This oil has also found wide usage in lens grinding and electro-discharge machining (EDM) applications.

CARNEA Oil 22 — A 22 cSt (nominal 100 SUS) at 40°C mineral oil, generally used in working copper and brass, as a diluent for active cutting oils where a higher flash point is required, or as a blending stock. This economical oil can also be used as a very light spindle oil, quenching oil and a forming oil.

MACRON® Oil M is a premium-quality, triple-purpose, non-staining, anti-mist cutting oil designed for a wide variety of machining operations on free-machining steel and non-ferrous metals such as magnesium, aluminum, copper, brass and bronze.

The triple-purpose feature of MACRON M allows it to be used as hydraulic oil, machine lubricant, and cutting oil in automatic screw machines that require such a product. Its non-staining property means it will not corrode any brass or bronze bushings, bearings or clutches in the machine.

The anti-misting characteristic of MACRON M aids the user in reducing oil mist generated in the plant. This is an important feature due to the restrictions OSHA has set on the allowable limits of oil mist. It also helps reduce housekeeping problems and fire hazards caused by mist.

The GARIA® Oils comprise a series of premium-quality, transparent, active-sulfur cutting oils. Each product is a carefully balanced blend of additives, various combinations of sulfur, chlorine and fatty oil in sulfurized base oils to give superior overall cutting oil performance.

GARIA S — This general-purpose, sulfurized mineral oil is used for turning, drilling, threading and tapping of steels of good machinability. It has a typical viscosity of 160 SUS (34.2 cSt) at 40°C.

GARIA D — A sulfurized mineral oil to which a fatty material has been added to provide metal wetting and a chlorine-containing additive to increase the anti-weld or extreme pressure characteristic of the oil. GARIA D is applicable to a wide variety of steels and machining operations. It is the most "general purpose" oil in the GARIA line. GARIA D also contains an anti-mist additive to reduce the mist generated in high-speed machining operations. It has a typical viscosity of 160 SUS (34.2 cSt) at 40°C.