SAFETY DATA SHEET

SECTION 1 PRODUCT and COMPANY INFORMATION

TRADE NAME: **Castle® Graphite Lub™**
PRODUCT TYPE: Aerosol Graphite Lubricant
PRODUCT CODE: C2065

MANUFACTURED FOR: Castle Products, Inc.
424 St. Paul Street
Rochester, NY 14605
(800) 876-0222
EMERGENCY (585) 275-3232

SECTION 2 HAZARDS IDENTIFICATION

GHS CLASSIFICATION: DANGER: 
Extremely flammable aerosol
Contains gas under pressure; may explode if heated
May be fatal if swallowed and enters airways
Causes serious eye irritation
Causes skin irritation
Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.
May cause drowsiness or dizziness
May cause respiratory irritation

Aerosols Category 1
Gases Under Pressure Compressed Gas
Aspiration Hazard - Category 1
Skin Irritation - Category 2
Eye Irritation - Category 2A
Reproductive Toxicity - Category 2
Specific Target Organ Toxicity - Repeated Exposure - Category 2
Specific Target Organ Toxicity -Single Exposure (Narcotic Effects) - Category 3
Specific Target Organ Toxicity -Single Exposure (Respiratory Tract Irritation) - Category 3
Percentage of the mixture consisting of ingredient(s) of unknown oral toxicity: 40.5%
Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 69.4%
Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 52.3%

PRECAUTIONARY STATEMENTS:
If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Do not spray on an open flame or other ignition source.
Do not pierce or burn, even after use.

DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 3 COMPOSITION INFORMATION ON INGREDIENTS

INGREDIENTS	CAS #	%
HEXANE	110-54-3	25-50%
PROPANE	74-98-6	10% - 25%
BUTANE	106-97-8	10% - 25%
2-METHYL PENTANE	107-83-5	10% - 25%
ISOPROPYL ALCOHOL	67-63-0	10% - 25%
3-METHYL PENTANE	96-14-0	1% - 5%
2,3-DIMETHYL BUTANE	79-29-8	1% - 5%
GRAPHITE	7782-42-5	1% - 3%
CYCLOHEXANE	110-82-7	1% - 3%
2,2-DIMETHYL BUTANE	75-83-2	1% - 3%
CYCLOPENTANE	287-92-3	0.1% - 1%

SECTION 4 FIRST AID MEASURES

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician if irritation persists.
If on skin: Take off contaminated clothing and wash it before reuse. Wash with plenty of water. Call a physician if irritation persists.
If swallowed: Rinse mouth. Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Appropriate for surrounding fire.
SPECIFIC/UNUSUAL HAZARDS: Extremely flammable aerosol. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed. Aerosol cans may rupture when heated. Heated cans may burst. In fire, will decompose to carbon dioxide, carbon monoxide Irritating gasses may be produced which will require SCBA or a fresh air source.
SPECIAL FIRE FIGHTING EQUIPMENT and PRECAUTIONS for FIREFIGHTERS: Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water may be used to cool containers to prevent pressure build-up and explosion when exposed to extreme heat. As in any fire, wear pressure-demand self-contained breathing apparatus, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions: Isolate area. Keep unnecessary personnel away. Stay upwind. Keep out of low areas. Ventilate spaces before entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk-through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
Environmental precautions: Prevent further leakage or spillage if safe to do so.
Methods for containment: Prevent entry into waterways, sewers, basements or confined areas.
Methods for cleaning up: Eliminate ignition sources including sources of electrical, static or frictional sparks. Wear appropriate protective equipment and clothing during clean-up.
Small Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for disposal.

Large Spills: A large spill is not likely to occur.

SECTION 7 HANDLING AND STORAGE

Handling: Avoid breathing vapors or mist. Avoid contact with skin and eyes. Wear suitable protective clothing. Wash hands after handling. Eating, drinking and smoking in work areas is prohibited. Remove contaminated clothing and protective equipment before entering eating areas. Eyewash stations and showers should be available in areas where this material is used and stored.
Storage: Keep containers tightly closed and properly labeled. Store in cool, dry, well-ventilated areas away from heat, direct sunlight and incompatibilities. Store in approved containers and protect against physical damage. Keep containers securely sealed when not in use. Indoor storage should meet OSHA standards and appropriate fire codes. Empty container retain residue and may be dangerous. Do not cut, drill, grind, weld, or perform similar operations on or near containers. Store at temperatures below 120°F (50° C).

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters: NE

Appropriate Engineering Controls: Maintain adequate local exhaust ventilation.
Individual Protective Measures - Personal Protective Equipment:
Gloves: Wear gloves, long sleeved shirt, long pants and other protective clothing as required to minimize skin contact. Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION, continued

Eye/Face Protection: Wear safety glasses or goggles.
Skin Protection: Chemical-resistant clothing is recommended to avoid prolonged contact. Avoid unnecessary skin contact.
Respiratory Protection: Not normally required if good ventilation is maintained.

SECTION 9 PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE: Liquid
ODOR: Solvent
ODOR THRESHOLD: ND
MELTING/FREEZING POINT: ND
BOILING POINT: ND
BOILING RANGE: ND
FLASH POINT: -20°F (-29°C)
LOWER EXPLOSIVE LIMIT: 1%
UPPER EXPLOSIVE LIMIT: 12.7%
FLAMMABILITY (solid, gas): below 73°F (23°C)
AUTOIGNITION TEMPERATURE: ND
EVAPORATION RATE (Butyl Acetate=1): 9.1
VAPOR PRESSURE: 101.3 kPa (20°C)
VAPOR DENSITY (air=1): 1.55
RELATIVE DENSITY: (H_2O=1): 0.63
SOLUBILITY IN WATER: ND
PARTITION COEFFICIENT (n-octanol/water):
pH: NA
DECOMPOSITION TEMPERATURE: ND
VISCOSITY (Kinematic): <0.205 cm^2/s (40°C)
PERCENT VOLATILE BY VOL %: 98%

SECTION 10 STABILITY and REACTIVITY DATA

CHEMICAL STABILITY: Stable under normal conditions.
POSSIBILITY of HAZARDOUS REACTIONS: None Known
CONDITIONS TO AVOID: Keep away from heat, sparks, extreme temperature, flame, other sources of ignition and incompatible materials.
INCOMPATIBLE MATERIALS: None Known
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide, Carbon Dioxide, Hydrocarbon fumes and smoke.
HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

HEALTH EFFECTS: No data available for the product.

Chemical Name	OSHA TWA (ppm)	OSHA TWA (mg/m3)	OSHA STEL (ppm)	OSHA Tables (Z1, Z2, Z3)	OSHA Carcinogen	NIOSH TWA (ppm)
BENZENE	1 (a)/25ceiling		50(a)/ 10minutes.	1	1	0.1c
BUTANE						800
CYCLOHEXANE	300	1050		1		300
CYCLOPENTANE						600
GRAPHITE	15 (a) mppcf	[15]; [15 mppcf]; [5];		[1]; [3];		
HEXANE	500	1800		1		50
ISOPROPYL ALCOHOL	400	980		1		400
PROPANE	1000	1800		1		1000
TOLUENE	200 (a)/ 300 ceiling	0.2	500ppm /10 minutes (a)	1,2		100

Chemical Name	NIOSH TWA (mg/m3)	NIOSH STEL (ppm)	NIOSH STEL (mg/m3)	NIOSH Carcinogen	ACGIH TWA (ppm)	ACGIH TWA (mg/m3)	ACGIH STEL (ppm)
2,2-DIMETHYL BUTANE					500		1000
2,3-DIMETHYL BUTANE					500		1000
2-METHYL PENTANE					500		1000

Chemical Name	NIOSH TWA (mg/m3)	NIOSH STEL (ppm)	NIOSH STEL (mg/m3)	NIOSH Carcinogen	ACGIH TWA (ppm)	ACGIH TWA (mg/m3)	ACGIH STEL (ppm)
3-METHYL PENTANE					500		1000
BENZENE		1c		1	0.5		2.5
BUTANE	1900						1000 (EX)
CYCLOHEXANE	1050				100		
CYCLOPENTANE	1720				600		
GRAPHITE	2.5					2 (R)	
HEXANE	180				50		
ISOPROPYL ALCOHOL	980	500	1225		200		400
PROPANE	1800						Simple asphyxiant (D), explosion hazard (EX)
TOLUENE	375	150	560		20		

Skin Corrosion/Irritation:
Causes skin irritation
HEXANE 110-54-3. The substance is irritating to the skin.
ISOPROPYL ALCOHOL 67-63-0, Contact can irritate and burn the skin. Prolonged or repeated contact can cause a skin rash, itching, dryness and redness.
CYCLOHEXANE 110-82-7. Can irritate and burn the skin.

Serious Eye Damage/Irritation:
Causes serious eye irritation.
ISOPROPYL ALCOHOL 67-63-0. Liquid irritates eyes and may cause injury.
CYCLOHEXANE 110-82-7. Can irritate and burn the eyes.

Carcinogenicity: No data available

Germ Cell Mutagenicity: No data available

Reproductive Toxicity: HEXANE 110-54-3. Reduced fetal weight, increase in fetal deaths and skeletal malformations through inhalation, skin contact and ingestion. Animal tests show that this substance possibly causes toxic effects upon human reproduction.

Respiratory/Skin Sensitization: No data available

Specific Target Organ Toxicity, Single Exposure:
ISOPROPYL ALCOHOL 67-63-0: May cause drowsiness or dizziness. May cause respiratory irritation. Vapors cause mild irritation of upper respiratory tract; high concentrations may be anesthetic.
CYCLOHEXANE 110-82-7: Exposure can cause headache, dizziness and lightheadedness. May damage the liver and kidneys.

Specific Target Organ Toxicity, Repeated Exposure:
ISOPROPYL ALCOHOL 67-63-0: Repeated high exposure can cause headache, dizziness, confusion, loss of coordination, unconsciousness and even death.
HEXANE 110-54-3: Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the central nervous system and peripheral nervous system. This may result in polyneuropathy.

Aspiration Hazard:
HEXANE 110-54-3: May be fatal if swallowed and enters airways. ASPIRATION causes severe lung irritation, coughing, pulmonary edema; excitement followed by depression.

Acute Toxicity:
ISOPROPYL ALCOHOL 67-63-0: Inhalation effect of overexposure includes irritation of respiratory tract, headache, dizziness, nausea, and loss of coordination. Extreme overexposure may result in unconsciousness and possibly death. If ingested causes drunkenness and vomiting. Inhalation can irritate the nose and throat.

HEXANE 110-54-3: Inhalation causes irritation of respiratory tract, cough, mild depression, cardiac arrhythmias. It has been reported that a 10-minute exposure to 5,000 ppm caused dizziness and a sensation of giddiness. Ingestion causes nausea, vomiting, swelling of abdomen, headache, depression.

SECTION 11 TOXICOLOGICAL INFORMATION, continued

Potential Health Effects – Miscellaneous

ISOPROPYL ALCOHOL 67-63-0: The following medical conditions may be aggravated by exposure: dermatitis, respiratory disease. Developmental toxicity was seen in rat's offspring at doses that were maternally toxic. Contact will cause moderate to severe redness and swelling, itching, tingling sensation, painful burning. May cause injury to the cornea of the eyes. Prolonged or repeated exposure may cause damage to any of the following organs/systems: liver. Ingestion studies on laboratory animals showed that very high oral doses caused increased liver and kidney weights.

TOLUENE 108-88-3: Increased susceptibility to the effects of this material may be observed in people with preexisting disease of any of the following: central nervous system, kidneys, liver, respiratory system, skin. Can be absorbed through the skin in harmful amounts. Recurrent overexposure may result in liver and kidney injury. High airborne levels have produced irregular heartbeats in animals and occasional palpitations in humans. Rats exposed to very high airborne levels have exhibited high frequency hearing deficits. The significance of this to man is unknown.

⚠WARNING: This chemical is known to the State of California to cause birth defects or other reproductive harm.

Chronic Exposure

TOLUENE 108-88-3: TERATOGENIC EFFECTS: Toluene has been Classified as POSSIBLE for humans.

LIKELY ROUTES of EXPOSURE:	INHALATION:	Yes
	INGESTION:	No
	SKIN CONTACT:	Yes
	EYECONTACT:	No

Toxicity:

CYCLOHEXANE 110-82-7:
LD50 (oral, rat): 8-39 mL/kg (6200 to 30400 mg/kg) (3)
LD50 (oral, mouse): 1300 mg/kg (3)
LD50 (dermal, rabbit): Greater than 18000 mg/kg (4)

ISOPROPYL ALCOHOL 67-63-0:
LC50 (rat): 17000 ppm (4-hour exposure); cited as 12000 ppm (8-hour exposure) (18)
LD50 (oral, male rat): 4710 mg/kg (cited as 6.0 mL/kg) (19)
LD50 (oral, mouse): 3600 mg/kg (20, unconfirmed)
LD50 (dermal, rabbit): 12870 mg/kg (cited as 16.4 mL/kg) (14)

TOLUENE 108-88-3:
LC50 (rat): 8800 ppm (4-hour exposure) (2)
LC50 (rat): 6000 ppm (6-hour exposure) (3)
LD50 (oral, rat): 2600 to 7500 mg/kg (3,5,11,17)
LD50 (oral, neonatal rat): less than 870 mg/kg (3) LD50 (dermal, rabbit): 12,225 mg/kg (reported as 14.1 ml/kg) (1)

HEXANE 110-54-3:
LC50 (male rat): 38500 ppm (4-hour exposure); cited as 77000 ppm (271040 mg/m3) (1-hour exposure) (15)
LC50 (rat): 48000 ppm (4-hour exposure) (16)
LC50 (rat): 73680 ppm (260480 mg/m3) (4-hour exposure) (n-hexane and isomers) (1,3)
LD50 (oral, 14-day old rat): 15840 mg/kg (3)
LD50 (oral, young rat): 32340 mg/kg (3)
LD50 (oral, adult rat): 28700 mg/kg (3,16)

BUTANE 106-97-8:
LC50 (mouse): 202000 ppm (481000 mg/m3) (4-hour exposure); cited as 680 mg/L (2-hour exposure) (9)
LC50 (rat): 276000 ppm (658000 mg/m3) (4-hour exposure); cited as 658 mg/L (4-hour exposure) (9)

BENZENE 71-43-2:
LC50 (rat): 13,700 ppm (4 hour exposure) (26); 9,980 ppm (7 hour exposure) (13,200 ppm - equivalent 4 hour exposure) (18)
LD50 (oral, rat): 930 mg/kg (19); 5,600 mg/kg (2); 11.4 ml/kg (10,032 mg/kg) (21)
LD50 (oral, mouse): 4,700 mg/kg (11; unconfirmed) LD50 (skin, rabbit and guinea pig): Greater than 9,400 mg/kg (20)

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY: No Data Available.
PERSISTANCE and DEGRADABILITY: Readily Biodegradable
BIOACCUMULATIVE POTENTIAL: Not expected to Bioaccumulate.
MOBILITY in SOIL: ND
OTHER ADVERSE EFFECTS: None Known.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal Considerations: Dispose according to all applicable Federal, State, and Local regulations.

SECTION 14 TRANSPORT INFORMATION

UN Number: UN1950
UN Proper Shipping Name: Aerosols, flammable, (each not exceeding 1 L capacity)
Transport Hazard Class(es): 2.1
Packing Group: NA
Marine Pollutant: NA
Special Precautions: None Required

DOT Classification: Consumer Commodity ORM-D, or Limited Quantity.

SECTION 15 REGULATORY INFORMATION

US federal regulations: All components are listed in the United States TSCA Regulations.

CERCLA (Superfund) reportable quantity: None

SARA (Superfund Amendments and Reauthorization Act of 1986):

313 Components: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Section 302 extremely hazardous substance: No

Section 311 hazardous chemical: No

Canada: This Product has been classified according to the hazard criteria of the CPR and the SDS contains all of the information required by the CPR.

California Proposition 65: ⚠ WARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov

SECTION 16 OTHER INFORMATION

Further information: (HMIS® is a registered trade and service mark of the NPCA.)

HMIS® ratings
Health: 3
Flammability: 4
Physical hazard: 3
Personal Protection: B

NFPA ratings
Health: 3
Flammability: 4
Instability: 3

Other: NA-Not Applicable, ND-Not Determined, NE-Not Established.

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