Introducing Lubricote Colloidal Graphite.

Why Lubricote?

In industry, conditions like extremely high temperatures and pressures, gritty atmospheres and corrosion due to chemicals are quite common.

Under such conditions, you know that ordinary lubricants get displaced and chemically broken down.

So far you couldn't do anything about it.

Now you can.

With Lubricote.

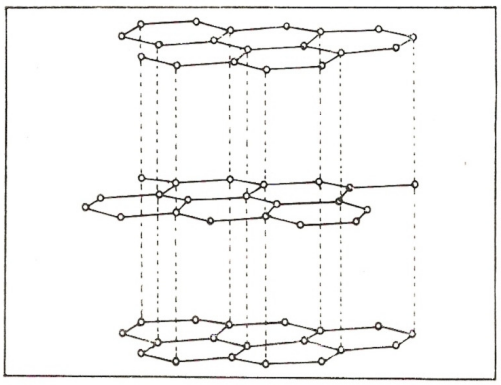
A special lubricant that can withstand these conditions amazingly well.

What's so special about Lubricote?

Lubricote is a highly stable suspension of pure, ultrafine graphite particles in various liquid media: oil, water and solvents.

The extraordinary properties of Lubricote are a result of the unique physical structure of graphite which is an allotropic form of carbon.

The carbon atoms in graphite are spaced in regular hexagons in sheets equidistant and parallel to the next.



The arrangement of carbon atoms in graphite crystals.

Under physical pressure, the distribution of forces between the carbon atoms make the planes slide over each other. Thus, innumerable planes of slip exist, each particle sliding freely on its neighbour, with an extremely low coefficient of friction.

As a lubricant, therefore, colloidal graphite is one of the best, having a hardness on Moh's scale between 0.5 and 1.0 only.

Moreover, the unique closed hexagonal crystal structure enables graphite to withstand almost all corrosive chemicals, including halogens, strong acids and alkalies. It can also withstand oxidation and temperatures up to 2500°C (out of contact with oxygen) and is incombustible at temperatures below 660°C.

The sub-microscopic particles of graphite in Lubricote are carried to the surface requiring lubrication where, under the existing conditions of high temperatures and pressures, the carrier medium is displaced, leaving the graphite in a tenacious film.

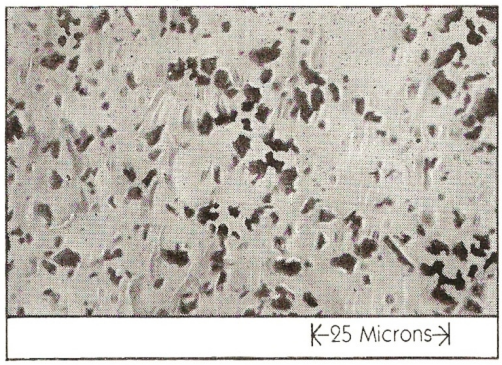
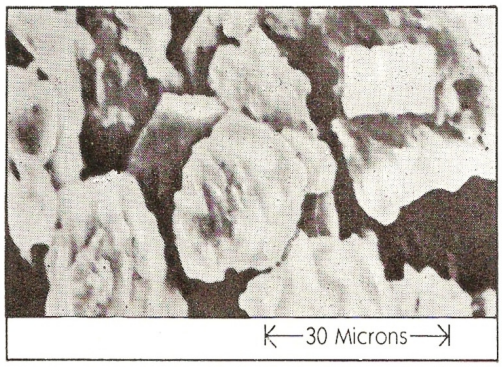


Photo micrograph of Lubricote showing finely divided particles of graphite in suspension.



Electron microphotograph of graphite crystals.

This film fills up even microscopic machining in-accuracies and prevents metal-to-metal contact and shear.

Not just a Lubricant

In addition to its manifold uses as a lubricant, Lubricote can be used to form electrostatic shields and conductive coatings because graphite is a good conductor of electricity.

You can also use it for impregnating porous articles such as fabrics, ceramics, paper, packing materials and sintered bearings.

Lubricote-X series: colloidal graphite in oil

Lubricote-X is a dispersion of colloidal graphite in refined mineral oil. It is normally blended with mineral oils to lower concentration for various uses. You can also use it undiluted to provide lubrication in particularly severe conditions.

Typical properties of Lubricote-X:

Industrial Graphites manufacture a range of oil based colloidal graphites to enable the user to select the best combination for each application. The range in which the following properties can be varied is as under:

i) Solids content	: 9 to 21%
ii) Graphite purity	: 99.9% C
iii) Specific gravity	: 0.90 to 0.96
iv) Flash point (Closed cup)	: 180°C to 250°C
v) Viscocity at 30°C	: 45 to 390 Secs (Redwood No. II)

Where to use Lubricote-X:

1. Assembly Lubrication — pistons, gudgeon pins, crank shaft bearings, cam shafts, valve stems and guides.
2. High temperature bearing lubrication— conveyor chains of baking, enameling and annealing ovens, kiln car bearings, blast valves, stems, tyres for rotary kilns, etc.
3. Running in — IC Engines, Compressors and pumps.
4. Forging — lubrication of dies and tools for steel forging and hot pressing, hot brass stamping, high strength light alloy press forging.
5. Extrusion — lubrication of dies and tools for aluminium and copper alloys.
6. Pressure diecasting — die face lubrication and release, lubrication of

ejectors, core slides and plungers.

7. Gravity diecasting — lubrication of core slides, pins, ejectors, die-faces.
8. Glass container manufacture — mould and neck ring lubrication.
9. Additive for conventional lubricating oils, greases etc.

How to use Lubricote-X:

Lubricote-X can be blended with most commercially available oils as well as paraffin white spirit. When mineral oil is used as a carrier in high temperature applications, dilute Lubricote-X with a light, low carbon forming oil which will evaporate clearly.

Lubricote-X and diluted Lubricote-X are easily applied by conventional spray, dip, brush, swab and drip methods.

Lubricote-Z series : colloidal graphite in water

Lubricote-Z is a homogenous suspension of extremely fine solid particles of pure graphite dispersed in water. Lubricote-Z is supplied in paste-like consistency and should be diluted for most applications.

Typical properties of Lubricote-Z:

Industrial Graphites manufacture a range of water based colloidal graphites to enable the user to select the best combination for each application. The range in which the following properties can be varied are:

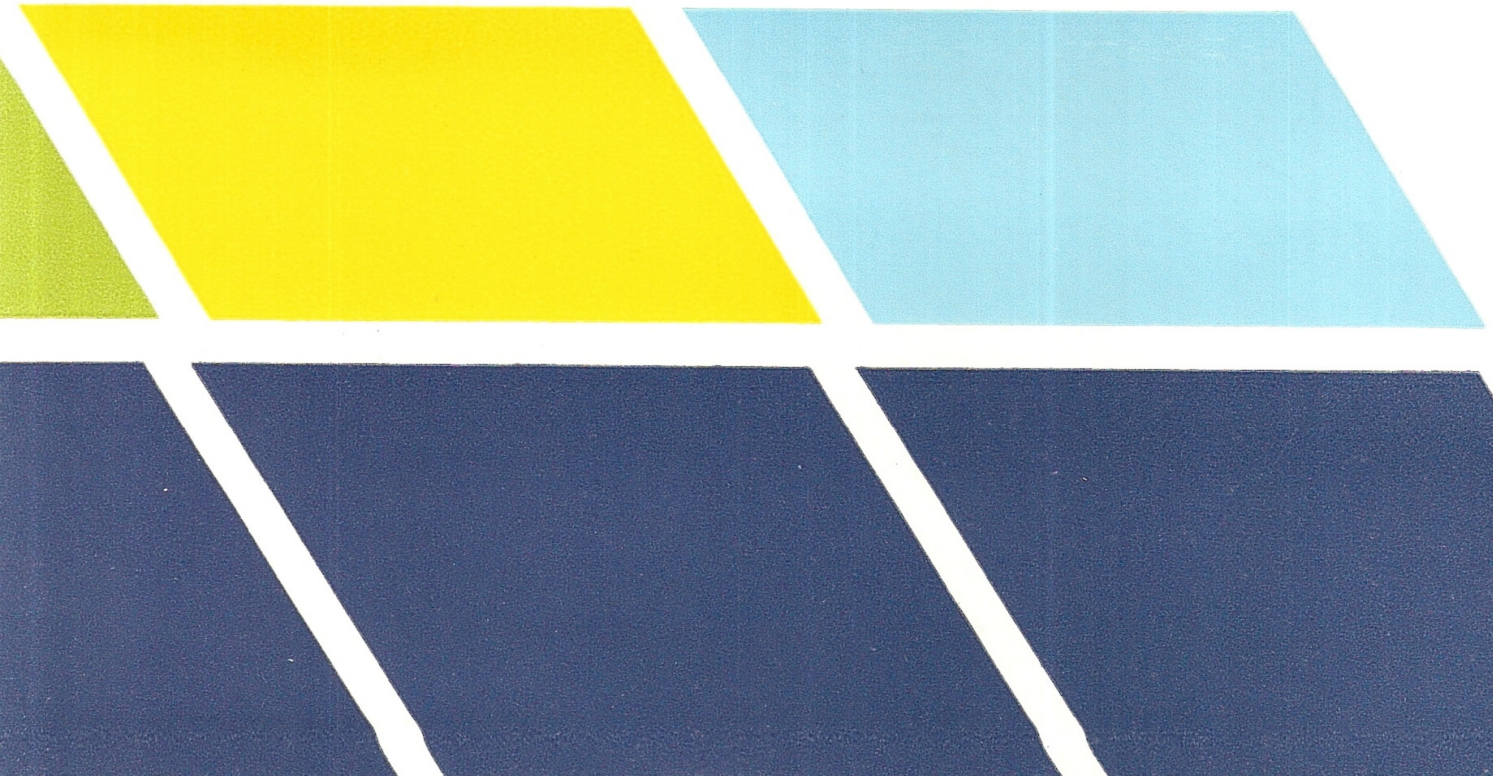
i) Solids content	:	15 to 30%
ii) Graphite purity	:	99.9% C
iii) Specific gravity	:	1.1 to 1.35
iv) pH	:	9 — 10
v) Consistency	:	A light to thixotropic paste
vi) Diluents	:	Distilled, demineralised or soft water

Where to use Lubricote-Z:

1. Die lubricant in forgings for non-ferrous, refractory alloys, stainless steel etc.
2. Hot wire drawing lubricant for fine tungsten and molybdenum.
3. Impregnation of fabrics and other jointing materials.
4. Pre-treatment of hot metal working dies, tools, mandrels etc.
5. Pressure and gravity diecastings of aluminium.
6. Feed water additive for boilers to prevent hard scale formations, surface treatment of economisers to prevent slag and ash deposition.
7. As an opacifying agent and a photographic opaque.
8. Electronic conductive coatings and insulator seals.

How to use Lubricote-Z:

Lubricote-Z can be easily applied by conventional spray, brush, dipping, swabbing and drip methods. It should be carefully sealed after each use to prevent evaporation losses and product deterioration.



Lubricote-S series: colloidal graphite in solvents

Lubricote-S series consists of a range of special-purpose colloidal suspensions of graphite in various organic liquids specifically made to meet special applications. The range of liquid media available include the alcohols, acetone, polyisobutylene and glycols. These colloids are available with or without binders.

Where to use Lubricote-S:

Lubricote-S is used for stainless steel forgings, conveyor chain pins, bakery chain lubrication and for other applications requiring dry film lubrication. Electrically conductive coatings having special conductivity characteristics can be prepared using Lubricote-S. Precise formulations can be offered to suit each specific application.

If you have a special application requiring a special grade of Lubricote, just ask us. Our technical department will gladly advise you on the correct dispersion.

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