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Copaltite Product Guide

High Pressure, High Temperature Sealing Compound

Copaltite Liquid is used for threaded connections and machined surfaces. It is a smooth, tacky paste that is easily spreadable. Although normally used without gaskets, Copaltite Liquid makes an excellent gasket dressing.

Copaltite Cement is used for rough surfaces, warped flanges or unfinished parts. It is a thick paste with a coarse texture which allows for in uneven surfaces. The cement form is also used as a gun grooving compound.

***Both Liquid & Cement Forms are offered in a 5 oz squeeze tube and Quart Can.

Applications

- Steam turbines
- Heat exchangers
- Pressure vessels
- Boilers
- Compressors
- Condensers
- Pressure gas lines
- Refrigeration lines
- Hydraulic systems

Used Successfully on:

- Steam Joints at 2,000 psi and 1200° F
- Flanges without gaskets up to 6,500 psi
- Threaded joints at 10,000 psi

TThe United States Government, along with industries worldwide, has proven Copaltite to be an unequaled sealing agent. Wherever reliable packing is required to withstand pressure, extreme temperatures, gases, acids, Freon, oil, benzene, or gasoline, Copaltite stands as the premier product on the market. Even under the most demanding conditions, Copaltite consistently outperforms competing solutions. It adheres readily to a wide range of surfaces, and its inherent elasticity ensures a secure, leak-free seal despite vibration, expansion, and contraction. For sealing threads, flanges, and other fittings exposed to high temperatures and pressures, Copaltite remains unmatched.

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Product Characteristics

- Effective in temperature range from 315° to 1500° F.
- Heat must be applied to cure. Heat of at least 300° F is recommended.
- Posesses anti-seize properties for very high temperature applications.
- Low shrinkage and coefficient of expansion.
- Easy separation of joints after extended use at extremely high temperatures and/or pressure.
- Resists most chemicals. Copaltite is used on lines containing steam, ammonia, hydrocarbons, refrigerants, hydraulic fluids, propane, brine, acids, and mild alkalis.
- Adheres to metals, ceramics, rubber and most plastics.
- Withstands severe vibrations and thermal shock.
- Meets US Navy test requirements for use on marine turbines at 1200 psi and 950° F (MIL-S-15204D)
- Copaltite conisistently out peforms other high pressure and high temperature pipe dopes.

Directions for Use

- Before application, the surfaces should be clean and dry. All dirt, oil, grease or moisture should be removed with gasoline or other solvent before applying Copaltite, as it has no affinity for foreign matter and must secure a direct bond to the metal surface.

- A thin coat of Copaltite should be appled on both surfaces to be sealed.

- Heat of at least 212°F must be applied to set Copaltite. At any temperature below 212°F, the set up time is too long to be practical. At 300°F, set up time is approximately 30 minutes.

- If a joint is to hold high pressure at an elevated temperature, heat should be applied without pressure until the Copaltite has set.

- If using Copaltite for a steam application, apply it to the joint, tighten and heat the joint by turning on the steam at little or no pressure for about six hours, preferably overnight to set.

- If Copaltite has hardened and needs to be removed, a wire brush and alcohol may be used to remove the product.

- If Copaltite needs to be thinned, Copaltite liquid can be used to thin Copaltite Cement. To think Copaltite liquid, pure alcohol can be used.

- Copaltite should be stored in a cool, dry place. The shelf life is one year from date of manufacture when stored at 72°F.

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Directions for Sealing Turbine Horizontal Joints

After casing has been lifted, clean upper and lower flange surface of all foreign matter. Be sure surface area is clear, dry, and free of any oil. Use gasoline or any solvent to clean off surface. Wipe clean and dry.

Grooved turbines with smooth surface flanges:
Apply thin film of liquid Copaltite to upper and lower flange surfaces, but not in groove. Allow to become tacky then lower casing and bolt down. This will make an actual tight joint without considering grooves.

While turbine is being warmed up before being placed in operation, and while turbine is hot, a pressure gun capable of developing at least 4000 psi should be used for dispensing Copaltite cement into the grooves. Filling the grooves should be done around the entire turbine in order to secure a uniform and permanent joint. This forms a Copaltite cement key.

When dispensing Copaltite cement into any one groove outlet, remove the nest plug (which we will call No. 1) in the direction the groove is being pumped. When the Copaltite begins to flow from No. 1 opening, close same and also remove gun and close opening. Start pumping into the next opening (which we will call No. 2), at the same time removing plug from No. 3 opening. Continue until all plugged openings have been pumped.

In the event the flange surfaces are scored, then substitue Copaltite Cement in place of liquid.

Frequently Asked Questions

How thick should Copaltite be applied when used as a gasket coating?
A thin film of Copaltite should be applied. The Copaltite should be applied to both surfaces of the gasket and allowed to become quite tacky before tightening down the surfaces.

How thick should Copaltite be applied without a gasket?
Copaltite should always be used sparingly. Only a sufficient amount to cover the flange or surface is necessary. Excess material will be forced out when the head is tightened down or the surfaces brought together.

Should the joint be made up tightly while the material is still moist or should it be permitted to dry?
The joint should not be tightened down immediately. Sufficient time should be given for the thinner content to evaporate. This will not only insure a better joint but will keep the Copaltite from being forced out when the joint is tightened.

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Frequently Asked Questions

If Copaltite is used on flanges, should both surfaces be coated?
Yes, both faces of the flange should receive a very thin coat of Copaltite.

Will Copaltite freeze a joint after being in service for a long period of time?
No, Copaltite will remain plastic indefinitely, and all joints are easily broken with alcohol and a wire brush.

Will a wide range of temperature cause Copaltite to become hard and brittle?
Copaltite will remain plastic under any conditions with temperatures varying from 315°F to 1500°F.

When storing Copaltite, should any special precautions be taken?
It is important to store in a cool place away from heat or sunlight. In the event that a can is opened repeatedly and a small amount is used, it is advisable to keep a thin film of methanol (pure alcohol) on top. This will help prevent Copaltite from drying out.

How should the surface be prepared for Copaltite application?
All dirt, oil, grease or moisture should be carefully removed with gasoline before applying Copaltite.

Will extreme vibration, contraction or expansion impair the security of the joint?
No, the plastic quality of Copaltite prevents any cracking or breaking due to extreme vibration, contraction or expansion.

In the event that it is necessary to thin Copaltite, what should be used?
For thinning Copaltite cement, Copaltite liquid should be used.. To thin Copaltite liquid, pure methanol should be used. In no case should turpentine or other thinner be used.

How should heat be applied?
Externally applied heat can be accomplished with a heat gun, infrared lights, or an oven for small parts. Care should be taken if an open flame such as a torch is used because Copaltite is flammable. If the metal is heated at a remote distance from the Copaltite joint, the metal can be made to conduct heat to the joint and affect a cure.

Are there any special instructions for using Copaltite on large diameter flanges?
Cover both faces with Copaltite cement of minimum thickness, then bring the faces into contact but do not tighten the joint for approx. one hour. Additional security may be obtained by slotting both inside flange faces – the slot to be staggered.

How do I know how much Copaltite I need for my application?
1 quart of Copaltite covers 3,091 square inches. 1 tube of Copaltite covers 88 square inches. 10 quarts covers exactly 20 square meters.