



PRODUCT CATALOG

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THE RIGHT COMPOUND FOR EVERY APPLICATION.

very application has unique characteristics, from the largest project to the smallest. Environmental conditions range from high temperatures to high humidity, from arctic blasts to desert heat. BESTOLIFE compounds include special additives to accommodate any criteria you require. Our motto, coined in the 1930s, still holds true: No matter the drilling condition, BESTOLIFE has the solution.

BESTOLIFE specializes in meeting the specific needs of customers. All of our compounds are available in a variety of container sizes, including plastic pails from one-gallon to five-gallon and metal pails when plastic is unsuitable. For smaller jobs, we offer compounds in tubes or small containers with applicator lids. We can provide compounds in bulk containers for long-term requirements.

If your application or conditions change, **BESTOLIFE** can meet your evolving needs. Contact your BESTOLIFE sales representative for latest information the about our compound container size availability, and compounds for special conditions.

Mr. B reminds us that every compound:

"APPLIES LIKE HONEY. WORKS LIKE A BEE."





BESTOLIFE COMPOUNDS LABEL COLOR SYSTEM



BESTOLIFE makes compounds for drilling, production and industrial purposes in a wide array of formulations.

To make our product formulas easier to identify, we've developed a label system that will tell you at a glance exactly what's in the pail.

FORMULATION

The color in the upper bar indicates the *Formulation*. Formulations include: copper, lead, zinc and non-metallic additives for use in a wide range of applications:

COPPER

LEAD

ZINC

NON-METALLIC

STORAGE

USAGE

The color in the lower bar indicates the *Usage*. BESTOLIFE produces drilling and production compounds for the energy industry, as well as industrial compounds for use in water wells, mining and other fields:

DRILLING

PRODUCTION

INDUSTRIAL



INTRODUCTION





WE KNOW THE DRILL.

ince 1932, BESTOLIFE has been the most trusted name in the petroleum industry as a manufacturer of high performance premium thread compounds for every drilling situation.

BESTOLIFE founder, I.H. Grancell, created the very first thread compound

to combat galling, seizing, and downmakeup. hole Grancell. who made the formula in a dishpan, called he his invention BESTOLIFE No. 270® - it quickly became the premier thread compound in the oil patch. In fact, BESTOLIFE No. 270[®] is still available for

purchase

today.

Throughout our history, BESTOLIFE has demonstrated our founder's spirit of innovation, by staying in tune with our customers' needs and creating specific solutions formulated to withstand the most extreme conditions on earth. Our industry has changed a lot since 1932. But regardless of change, our commitment to our customers has never wavered.



Today **BESTOLIFE** leads the market for Drilling, Production, **Industrial** compound and applications. We offer a wide range of premium compounds that are proven to extend the life of drilling equipment. They are formulated and manufactured with our continued commitment to strict standards of quality and performance for developing compounds that meet or exceed industry standards and customer needs.



Making the right connections



PERFORMANCE

AS SWEET

AS HONEY

LAB TESTED. FIELD PROVEN.

ESTOLIFE compounds come in a range of labtested and field proven formulas ranging from Copper, Zinc and Lead based metallics that

can stand up to extremes in pressure and temperature, to Metal Free compounds formulated to meet environmental regulations.

BESTOLIFE compounds can be used in a variety of applications and tailored to meet specific needs. They are available in a range of container sizes from tubes or small containers with applicator lids, plastic or metal pails in 1, 2, 3.5 and 5 gallon sizes, to 55 gallon drums and large bulk containers.

If your conditions change,
BESTOLIFE can develop
specially formulated compounds
that meet your specific needs. Ask your sales
representative about container size availability
or custom formulas mixed to meet your specific
conditions and needs.









WHAT MAKES BESTOLIFE BEST?



EXTENSIVE EXPERIENCE

In 1932, our founder I.H.

Grancell created BESTOLIFE No.
270®, which is still available for purchase today. Since that time we have innovated a vast line of compounds for virtually every use or condition.



TOP-NOTCH SERVICE

Our experienced team can handle any size order and can deliver it on time to any place in the world. Our sales staff are available for assistance if you have any questions about BESTOLIFE products.



QUALITY CONTROL

Our quality control program sets
BESTOLIFE head and shoulders
above other compound makers.
We do our own internal control taking samples from every batch
to test for consistency
and quality.



RESEARCH AND DEVELOPMENT

Since our inception, we have continually developed compounds to meet the changing needs of the industry and to insure that our compounds perform under the most extreme conditions.



CUSTOMIZED COMPOUNDS

BESTOLIFE compounds can be used in a variety of applications and can be tailored to meet specific needs. They are available in a range of container sizes from tubes and pails, to even larger bulk containers.



ENVIRONMENTALLY CONSCIOUS

We are committed to making new products that meet environmental standards. We are members of the National Groundwater Association, and were first to develop a yellow-rated environmentally friendly compound.



OUR SUCCESS BEGINS AND ENDS WITH OUR TEAM.



BESTOLIFE SALES, ADMINISTRATIVE AND MANAGEMENT TEAM

Strong leadership is ready to invest in the future, building on a foundation of past success.



BESTOLIFE R&D TEAM

Research and development never stops finding new ways to keep up with a rapidly changing industry.



BESTOLIFE PRODUCTION TEAM

It takes a high performance team to manufacture high performance products.



WORLD'S HARDEST WORKING COMPOUNDS.

THE LAB

BESTOLIFE takes product development seriously with a new state-of-the-art lab.

THE PLANT

Our plant
operates under
strict quality
control and
manufacturing
standards.



THE WAREHOUSE

Our warehouse stores a vast inventory of color-coded products in a variety of container sizes.



Our shipping process is efficient and service-oriented to assure on-time delivery.







DRILLING





BESTOLIFE No. 270®



3 1/2 Gallon Metal Pail

PRODUCT CHARACTERISTICS

T KODOOT OHD MUUTOT EIMOTTOS		
Color:	Black	
Penetration: (ASTM D217)	290-310	
NLGI Grade:	1.5	
Weight/Gallon:	19.6 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	10°F (-12°C)	
Friction Factor:	1.0*	
Contains: Over 60% metallic lead and other nonmetallic additives		

Note: All package sizes are not listed. Call your sales representative for a complete listing.

DESCRIPTION

The original BESTOLIFE No. 270® is a patented formulation for rotary-shouldered connections. It combats galling, seizing, and downhole makeup.

APPLICATIONS

Premium drill collar compound provides maximum protection. Recommended for drill collars, tool joints, casing, tubing, pipe joints, studs, bolts, nuts and screws, gaskets, high temperature flange connections, pumps, exhaust lines and pipeline connections.

TECHNICAL DATA

BESTOLIFE No. 270® is a superior thread compound that contains over 60% pure metallic lead and special non-metallic additives. This premium compound provides maximum protection of drill collars, drill pipe and all threaded connections, except oxygen lines. BESTOLIFE No. 270® provides a stable seal under all conditions and is not attacked by H₂S or drilling fluids. Meets the requirements of API RP SPEC 7: "Specification for Rotary Drill Stem Elements".

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
600114	1 gallon	14 pounds plastic
600150	3 1/2 gallon	50 pounds metal



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.



BESTOLIFE 60% LEAD BASE



3 1/2 Gallon Metal Pail

PRODUCT CHARACTERISTICS

I RODOCI CHARACIERISTICS		
Color:	Black	
Penetration: (ASTM D217)	290-310	
NLGI Grade:	1.5	
Weight/Gallon:	19.6 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	10°F (-12°C)	
Friction Factor:	1.0*	
Contains: 60% lead and other nonmetallic additives		

*API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

When budget is a factor, BESTOLIFE 60% Lead Base is the compound for you. Designed for use on drill collars and drill pipe, the economical 60% Lead Base resists H₂S and drilling fluids.

APPLICATIONS

Economical drill collar compound.

TECHNICAL DATA

BESTOLIFE 60% Lead Base is an economical lead base compound designed for use on drill collars, drill pipe, and other threaded connections. It will provide performance comparable to other more expensive drill collar compounds at a very competitive cost. BESTOLIFE 60% Lead Base contains 60% pure metallic lead blended with other non-metallic additives in a high quality base grease, and is not affected by H₂S or drilling fluids. Meets the requirements of API RP SPEC 7: Specification for Rotary Drill Stem Elements.

NOTES

BESTOLIFE 60% Lead Base meets all applicable API and IADC standards.

PACKAGING

PRODUCT	CONTAINER	CONTAINER
NUMBER	SIZE	WEIGHT
600850	3 1/2 gallon	50 pounds metal





BESTOLIFE PB BLACK



3 1/2 Gallon Metal Pail

PRODUCT CHARACTERISTICS

T KODOOT OHD WOTEN TOO		
Color:	Black	
Penetration: (ASTM D217)	290-310	
NLGI Grade:	1.5	
Weight/Gallon:	18.3 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	10°F (-12°C)	
Friction Factor:	1.0*	
Contains: Metallic lead and other nonmetallic additives		

^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE PB Black is an economical lead-based compound for use on drill collars, drill pipe, and other threaded connections. It performs comparably to more expensive drill collar compounds at a very competitive cost.

APPLICATIONS

Economical drill collar compound.

TECHNICAL DATA

BESTOLIFE PB Black is an economical lead base compound designed for use on drill collars, drill pipe, and other threaded connections. It will provide performance comparable to other more expensive drill collar compounds at a very competitive cost. BESTOLIFE PB Black contains pure metallic lead blended with other non-metallic additives in a high-quality base grease, and is not affected by H₂S or drilling fluids. Meets the requirements of API RP SPEC 7: Specification for Rotary Drill Stem Elements.

NOTES

BESTOLIFE PB Black meets all applicable API and IADC standards.

PACKAGING

PRODUCT	CONTAINER	CONTAINER
NUMBER	SIZE	WEIGHT
600750	3 1/2 gallon	50 pounds metal





MR. B



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

PRODUCT CHARACTERISTICS		
Color:	Black	
Penetration: (ASTM D217)	290-310	
NLGI Grade:	1.5	
Weight/Gallon:	12.7pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	10°F (-12°C)	
Friction Factor:	1.0* / 1.1**	
Contains: Lead, graphite and other nonmetallic additives		

^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

DESCRIPTION

BESTOLIFE Mr. B combines finely powdered metallic lead with non-metallic additives to cushion joints and enhance high temperature applications. For use on drill pipe, casing, and pipeline connections of every type.

APPLICATIONS

Economical tool joint and drill pipe compound.

TECHNICAL DATA

Mr. B is a junior version of BESTOLIFE No. 270®, containing finely powdered metallic lead. Special non-metallic additives cushion joints and enhance high temperature properties. Provides economical protection for drill pipe, and pipeline connections of every type (except oxygen). Like BESTOLIFE No. 270®, Mr. B is not attacked by H₂S or drilling fluids.

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
610010	1 gallon	10 pounds plastic
610020	2 gallon	20 pounds plastic
610030	3 1/2 gallon	30 pounds plastic
610050	5 gallon	50 pounds plastic



^{**}The proper field torque for all API casing and tubing connections should be determined by following the procedures outlined in API RP 5C1: Recommended Practice for Care and Use of Casing and Tubing.



COPPER SUPREME SPECIAL BLEND®



5 Gallon Metal Pail

PRODUCT CHARACTERISTICS

THOUSE CHARACTERISTICS		
Color:	Copper	
Penetration: (ASTM D217)	300-320	
NLGI Grade:	1	
Weight/Gallon:	10.2 pounds/gallon	
Thickener:	Lithium Complex	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥500°F (≥260°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	15°F (-9°C)	
Oil Separation:	<3.0%	
Copper Corrosion:	1A	
Friction Factor:	octor: 1.1*	
Contains: Copper flake, synthetic and amorphous graphite and other nonmetallic additives		

^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

DESCRIPTION

BESTOLIFE Copper Supreme Special Blend® (CSSB) is a non-lead, non-zinc compound that applies easily in a wide range of temperatures and conditions. CSSB is washout resistant and will not harden or bleed excessively in storage.

APPLICATIONS

High temperature compound for drill collars and drill pipe. Recommended for all drilling applications (rotary-shouldered connections), including high temperature environments. It is also effective for use on open gear jack-up legs.

TECHNICAL DATA

CSSB has been developed as an answer to the environmental restrictions and exposure concerns associated with the use of lead and zinc drill collar/tool joint thread compounds. (continued on back)

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
635009	1 gallon	10 pounds plastic
635009	1 gallon	10 pounds plastic
635034	3 1/2 gallon	30 pounds plastic
635054	5 gallon	50 pounds plastic



DRILLING COMPOUND

COPPER SUPREME SPECIAL BLEND®

(continued from front)

In addition to the galling and seizing protection provided by the solids, it also contains a soluble extreme pressure package that is surface active and helps to provide the load carrying capability required by the high bearing stresses present in rotary-shouldered connections.

NOTES

API and IADC tables for drill collars and drill pipe are minimum torque values. BESTOLIFE recommends an additional 10-15% torque beyond the minimum torque specified by these tables be applied, to ensure maximum performance and protection when using BESTOLIFE copper compounds.

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmosphere.





COPPER SUPREME SPECIAL BLEND® PLUS



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

I RODOCI CHARACIERISTICS		
Color:	Copper	
Penetration: (ASTM D217)	310-330	
NLGI Grade:	1	
Weight/Gallon:	10.2 pounds/gallon	
Thickener:	Lithium Complex	
Dropping Point: (ASTM D2265)	≥500°F (≥260°C)	
Flash Point:	399°F (204°C)	
Brushable To:	15°F (-9°C)	
Friction Factor:	1.1*	
Salt Spray Test: (ASTM B117)	≥2500 Hours	
Contains Conner flake synthetic and		

Contains: Copper flake, synthetic and amorphous graphite and other nonmetallic additives

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmosphere.

DESCRIPTION

BESTOLIFE Copper Supreme Special Blend® Plus (CSSB PLUS) adds a proprietary corrosion inhibitor to the original CSSB formula, providing excellent storage protection in addition to its superior running capabilities. CSSB PLUS guards against corrosion, resists washout, and will not harden or bleed excessively in storage.

APPLICATIONS

High temperature compound for drill collars and drill pipe with storage protection. Recommended for all drilling applications (rotary-shouldered connections), including high temperature environments. It is also effective for use on slides, jacking systems, cantilever type rigs and assemblies.

TECHNICAL DATA

CSSB PLUS contains copper flake combined with a proprietary blend of amorphous and synthetic graphite, oxidation, corrosion, and H₂S inhibitors, in a high temperature base grease. API and IADC tables for drill collars and drill pipe are minimum torque values. BESTOLIFE recommends an additional 10-15% torque beyond the minimum torque specified by these tables be applied, to ensure maximum performance and protection when using BESTOLIFE copper compounds.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
635011	1 gallon	10 pounds plastic
635017	3 1/2 gallon	30 pounds plastic
635081	5 gallon	50 pounds plastic



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.



COPPER JOINT



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

PRODUCT CHARACTERISTICS		
Color:	Copper	
Penetration: (ASTM D217)	300-320	
NLGI Grade:	1	
Weight/Gallon:	10.9 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	10°F (-12°C)	
Friction Factor:	1.0*	
Contains: Copper, lead, graphite and other nonmetallic additives		

DESCRIPTION

BESTOLIFE Copper Joint (CJ) is a copper/lead-based compound for use on rotary-shouldered connections.

APPLICATIONS

Premium drill collar and tool joint compound. Recommended for drill collars, tool joints, tubing, fishing tools, line pipe connections, flange connections, gaskets and seals.

TECHNICAL DATA

BESTOLIFE Copper Joint is a copper, lead, and graphite based compound that seals and protects threaded connections in both high temperatures and high pressures. It can be used on casing and tubing connections as well as drill pipe and collars. Contains H2S inhibitors.

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
630010	1 gallon	10 pounds plastic
630025	3 1/2 gallon	25 pounds plastic
630050	5 gallon	50 pounds plastic



^{*}API RP 7A 1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.



COPPER JOINT LEAD FREE



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Dark Copper	
Penetration: (ASTM D217)	310-330	
NLGI Grade:	1	
Weight/Gallon:	10.2 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	10°F (-12°C)	
Friction Factor:	1.1*	
Contains: Copper, graphite and other nonmetallic additives		

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE Copper Joint Lead Free (CJLF) is a non-lead, non-zinc thread compound for rotary-shouldered connections. Its high copper content allows it to bear high-pressure stress. CJLF applies easily in a wide range of temperatures and conditions, and is resistant to washout. It will not harden or bleed excessively in storage.

APPLICATIONS

Lead-free answer for drill collars and drill pipe. Recommended for all drilling applications (rotary-shouldered connections). It also is effective for use on open gear jack-up legs.

TECHNICAL DATA

Copper Joint Lead Free has been developed as an answer to the environmental restrictions and exposure concerns associated with the use of lead and zinc drill collar/tool joint thread compounds. Copper Joint Lead Free has a torque correction factor of 1.1 (10% additional torque required) which will provide additional resistance to down-hole make-up as compared to lead or zinc compounds. It applies easily in a wide range of temperatures and conditions, is resistant to washout and will not harden or bleed excessively in storage. Conforms to API RP 5A3 evaporation, oil separation, and copper corrosion requirements.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
635010	1 gallon	10 pounds plastic
635025	3 1/2 gallon	25 pounds metal
635050	5 gallon	50 pounds plastic



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.



BESTOLIFE CBLF-HT



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

TROBUGI GIDALU (GIZALISTICS		
Color:	Copper	
Penetration: (ASTM D217)	300-320	
NLGI Grade:	1	
Weight/Gallon:	10.2 pounds/gallon	
Thickener:	Lithium Complex	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥500°F (≥260°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	15°F (-9°C)	
Friction Factor:	1.1*	
Contains: Copper flak amorphous graphite a additives	-	

*API RP 7A1 "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

Note: All package sizes are not listed. Call your sales representative for a complete listing.

DESCRIPTION

BESTOLIFE Cal Bronze Lead Free High Temp (CBLF-HT) is a lead-free, zinc-free compound for rotary-shouldered connections. It provides galling and seizing protection and support for high bearing stress. CBLF-HT applies easily in a wide range of temperatures and conditions, is resistant to washout, and will not harden or bleed excessively in storage.

APPLICATIONS

High temperature compound for drill collars and drill pipe. Recommended for all drilling applications (rotary-shouldered connections) including high temperature environments. It is also effective for use on open gear jack-up legs.

TECHNICAL DATA

CBLF-HT has been developed as an answer to the environmental restrictions associated with the use of lead and zinc drill collar/tool joint thread compounds. It contains copper flake combined with a proprietary blend of amorphous and synthetic graphite, along with oxidation and H₂S inhibitors, in a high-temperature base grease. API and IADC tables for drill collars and drill pipe are minimum torque values. BESTOLIFE recommends an additional 10-15% torque beyond the minimum torque specified by these tables be applied, to ensure maximum performance and protection when using BESTOLIFE copper compounds. Conforms to API RP 5A3 evaporation, oil separation, and copper corrosion requirements.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
655235	3 1/2 gallon	35 pounds plastic
655250	5 gallon	50 pounds plastic





CAL BRONZE



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Copper	
Penetration: (ASTM D217)	300-320	
NLGI Grade:	1	
Weight/Gallon:	11.7 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To: 10°F (-12°C)		
Friction Factor: 1.0*, 1.1**		
Contains: Lead, copper, zinc, graphite and other nonmetallic additives		

^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE Cal Bronze (CB) is an all purpose compound for rotary-shouldered connections, casing, and tubing. A copper/lead/zinc based compound, Cal Bronze is recommended for drill collars in light to medium duty drilling, drill pipes, and casing and tubing connections that require a thread compound for high temperature/high pressure conditions.

APPLICATIONS

Economical copper compound for use on drill collars and drill pipe.

TECHNICAL DATA

BESTOLIFE Cal Bronze is an economical all-purpose drill pipe and drill collar compound developed for hot, rugged, corrosive drilling conditions. Finely powdered lead, copper, zinc and special nonmetallic additives absorb stresses and enhance high-temperature properties. Contains H2S and corrosion inhibitors. API and IADC tables for drill collars and drill pipe are minimum torque values. BESTOLIFE recommends an additional 10-15% torque beyond the minimum torque specified by these tables be applied, to ensure maximum performance and protection when using BESTOLIFE copper compounds.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
650010	1 gallon	10 pounds plastic
650025	3 1/2 gallon	25 pounds metal
650050	5 gallon	50 pounds plastic



^{**}The proper field torque for all API casing and tubing connections should be determined by following the procedures outlined in API RP 5C1: "Recommended Practice for Care and Use of Casing and Tubing".



CAL BRONZE LEAD FREE



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Copper	
Penetration: (ASTM D217)	310-330	
NLGI Grade:	1	
Weight/Gallon:	10.2 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	10°F (-12°C)	
Friction Factor:	1.1*	
Contains: Copper, graphite, and other nonmetallic additives		

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE Cal Bronze Lead Free is a multipurpose thread compound for drill pipe and drill collars in light to medium duty drilling. CBLF can also be used in water well drill pipe, casing or line pipe. NSF Registered.**

APPLICATIONS

Lead free copper compound for use on drill collars and drill pipe.

TECHNICAL DATA

Cal Bronze Lead Free provides the excellent sealing properties of lead and zinc in a compound that contains no toxic materials that exceed the current maximum allowable FPA limits for solid waste. The copper flake and graphite provide the resistance to galling and seizing necessary for rotary-shouldered connections. Contains oxidation and H₂S inhibitors. Cal Bronze Lead Free has registration from NSF, National Sanitation Foundation.** API and IADC tables for drill collars and drill pipe are minimum torque values. BESTOLIFE recommends an additional 10-15% torque beyond the minimum torque specified by these tables be applied, to ensure maximum performance and protection when using BESTOLIFE copper compounds. Conforms to API RP 5A3 evaporation, oil separation, and copper corrosion requirements.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
655010	1 gallon	10 pounds plastic
655025	3 1/2 gallon	25 pounds metal
655050	5 gallon	50 pounds plastic



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

^{**}NSF Registration No. 141560 Category Code: H2



COPR 99



5 Gallon Metal Pail

PRODUCT CHARACTERISTICS

I RODOCI CHARACIERISTICS		
Color:	Copper	
Penetration: (ASTM D217)	310-330	
NLGI Grade:	1	
Weight/Gallon:	9.9 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	10°F (-12°C)	
Friction Factor: 1.0*		
Contains: Copper, graphite and other nonmetallic additives		

*API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmosphere.

Note: All package sizes are not listed. Call your sales representative for a complete listing.

DESCRIPTION

BESTOLIFE Copr 99 is a lead-free, zinc-free thread compound for rotary-shouldered connections. It provides galling and seizing protection and support for high bearing stress. It applies easily in a wide range of temperatures and conditions, resists washout, and will not harden or bleed excessively in storage.

APPLICATIONS

Economical copper/PTFE compound for rotary-shouldered connections. Recommended for all drilling applications (rotary-shouldered connections). It is also effective for use on slides, jacking systems, cantilever type rigs, and assemblies.

TECHNICAL DATA

Copr 99 meets or exceeds environmental restrictions and exposure concerns associated with the use of lead and zinc drill collar/tool joint thread compounds. It contains copper flake combined with a proprietary blend of graphite and other solids in a high-quality lubricating base grease. API and IADC tables for drill collars and drill pipe are minimum torque values. BESTOLIFE recommends an additional 10-15% torque beyond the minimum torque specified by these tables be applied, to ensure maximum performance and protection when using BESTOLIFE copper compounds.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
655510	1 gallon	10 pounds plastic
655520	2 gallon	20 pounds plastic
655535	3 1/2 gallon	35 pounds metal
655545	5 gallon	45 pounds plastic





WHITE COLLAR



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Light Gray	
Penetration: (ASTM D217)	300-320	
NLGI Grade:	1	
Weight/Gallon:	11.4 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	10°F (-12°C)	
Friction Factor: 1.0*		
Contains: Zinc oxide, PTFE, and other nonmetallic additives		

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE White Collar is a versatile, effective, and economical drill collar compound that combines zinc oxide and PTFE to enhance sealing and galling resistance for both new and worn connections. It resists extreme pressure and wear and is not affected by H₂S or other corrosive compounds.

APPLICATIONS

Zinc/PTFE compound for drill collars.

TECHNICAL DATA

White Collar is an effective, yet economical drill collar compound that can be used in a wide range of drilling conditions. The combination of zinc oxide and a high percentage of PTFE provides both enhanced sealing and galling resistance in a compound that can be used on both new and worn connections. White Collar includes a high level of extreme pressure and anti-wear additives that will help to reduce collar wear and damage that results in expensive re-works. White Collar is not affected by H₂S or other corrosive environments.

PACKAGING

PRODUCT	CONTAINER	CONTAINER
NUMBER	SIZE	WEIGHT
626050	5 gallon	50 pounds plastic



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.



WHITE COLLAR PREMIUM



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Light Gray	
Penetration: (ASTM D217)	300-320	
NLGI Grade:	1	
Weight/Gallon:	11.4 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	10°F (-12°C)	
Friction Factor: 1.0*		
Contains: Zinc oxide, PTFE and other nonmetallic additives		

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE White Collar Premium is a versatile, effective, and premium drill collar compound that combines zinc oxide and PTFE to enhance sealing and galling resistance for both new and worn connections. White Collar Premium contains no lead. It resists extreme pressure and wear and is not affected by H₂S or other corrosive compounds.

APPLICATIONS

Zinc/PTFE compound for drill collars.

TECHNICAL DATA

White Collar Premium is an effective, premium drill collar compound that can be used in a wide range of drilling conditions. The combination of zinc oxide and a high percentage of PTFE provides both enhanced sealing and galling resistance in a compound that can be used on both new and worn connections. White Collar Premium includes a high level of extreme pressure and anti-wear additives that will help to reduce collar wear and damage that results in expensive re-works. White Collar Premium is not affected by H₂S or other corrosive environments.

PACKAGING

PRODUCT	CONTAINER	CONTAINER
NUMBER	SIZE	WEIGHT
626500	5 gallon	50 pounds plastic



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.



BLACK JACK



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Black	
Penetration: (ASTM D217)	300-320	
NLGI Grade:	1	
Weight/Gallon:	11.9 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	10°F (-12°C)	
Friction Factor:	1.0*	
Contains: Zinc oxide, graphite, PTFE, and other nonmetallic additives		

DESCRIPTION

BESTOLIFE Black Jack uses zinc oxide, graphite, oxidation and H₂S inhibitors, and PTFE to combine effectiveness and economy. For new and worn drill pipe connections, Black Jack provides excellent seizing and galling protection, superior adherence, and effective washout resistance under the most severe conditions.

APPLICATIONS

PTFE compound for drill pipe.

TECHNICAL DATA

Black Jack is an effective yet economical tool joint compound that can be used in a wide range of drilling conditions. It combines the proven sealing performance and galling resistance of zinc oxide, graphite, and PTFE in a compound that also provides superior adherence and washout resistance even under the most severe conditions. Black Jack can be used on both new and worn connections. Contains oxidation and H₂S inhibitors.

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

PACKAGING

PRODUCT	CONTAINER	CONTAINER
NUMBER	SIZE	WEIGHT
602550	5 gallon	50 pounds plastic



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.



BESTOLIFE ZN-50



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Gray	
Penetration: (ASTM D217)	290-310	
NLGI Grade:	1.5	
Weight/Gallon:	15 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥485°F (≥252°C)	
Brushable To:	10°F (-12°C)	
Friction Factor:	1.0*	
Contains: Zinc and other nonmetallic additives		

DESCRIPTION

BESTOLIFE ZN-50 is a zinc-based thread compound recommended for drilling, tool joints, drill collars, and coring bits. It contains 50% finely powdered metallic zinc, plus H₂S and oxidation inhibitors.

APPLICATIONS

Zinc-based thread compound recommended for drilling, tool joints, drill collars, and coring bits.

TECHNICAL DATA

ZN-50 is a zinc-based thread compound made with finely powdered metallic zinc. It contains 50% zinc as well as $\rm H_2S$ and oxidation inhibitors. Meets the requirements of API RP SPEC 7: "Specification for Rotary Drill Stem Elements".

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

PACKAGING

PRODUCT NUMBER	CONTAINER WEIGHT	PRODUCT NUMBER
622240	3 1/2 gallon	40 pounds plastic
622259	5 gallon	60 pounds metal



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.



BESTOLIFE ZN-60



5 Gallon Metal Pail

PRODUCT CHARACTERISTICS

I RODOCI CII/AICACI ERISTICS		
Color:	Gray	
Penetration: (ASTM D217)	290-310	
NLGI Grade:	1.5	
Weight/Gallon:	16.3 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	490°F (254°C)	
Brushable To:	10°F (-12°C)	
Friction Factor:	1.0*	
Contains: Zinc and other nonmetallic additives		

DESCRIPTION

BESTOLIFE ZN-60 is a zinc-based thread compound recommended for drilling, tool joints, drill collars, and coring bits. It contains 60% finely powdered metallic zinc, plus H₂S and oxidation inhibitors.

APPLICATIONS

Zinc-based thread compound recommended for drilling, tool joints, drill collars, and coring bits.

TECHNICAL DATA

ZN-60 is a zinc-based thread compound made with finely powdered metallic zinc. It contains 60% zinc as well as $\rm H_2S$ and oxidation inhibitors. Meets the requirements of API RP SPEC 7: "Specification for Rotary Drill Stem Elements".

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

PACKAGING

PRODUCT NUMBER	CONTAINER WEIGHT	PRODUCT NUMBER
623340	3 1/2 gallon	40 pounds plastic
623370	5 gallon	70 pounds metal



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.



BESTOLIFE 3000®



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

I RODOCI CITARACIERISTICS		
Color:	Black	
Penetration: (ASTM D217)	330-350	
NLGI Grade:	1	
Weight/Gallon:	10.2 pounds/gallon	
Thickener:	Lithium Complex	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥500°F (≥260°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	15°F (-9°C)	
Friction Factor:	1.0*	
Contains: Amorphous and synthetic graphite and other nonmetallic additives		

*API RP 7A 1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmosphere.

DESCRIPTION

BESTOLIFE 3000® was the first totally non-metal drilling compound, formulated to address environmental concerns as well as the costs of thread compounds with high percentages of heavy metals. The formulation contains a variety of amorphous and synthetic graphite-based materials that combine to make a gasket-like seal to prevent connection washout even under high internal fluid pressures. The use of premium quality, high temperature based grease enhances its performance.

APPLICATIONS

Non-metallic compound for rotary-shouldered connections.

TECHNICAL DATA

Launched in the early 1990's, BESTOLIFE 3000® was the first totally non-metal thread compound to provide all the critical performance properties that must be present to protect rotary shouldered connections from high stresses, combining loading, downhole temperatures, and internal pressure typically encountered in offshore drilling applications

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
656035	3 1/2 gallon	35 pounds plastic
656050	5 gallon	50 pounds plastic





BESTOLIFE 3010® NM SPECIAL



5 Gallon Metal Pail

PRODUCT CHARACTERISTICS

Color:	Black	
Penetration: (ASTM D217)	320-350	
NLGI Grade:	1	
Weight/Gallon:	10.7 pounds/gallon	
Thickener:	Calcium	
Fluid Type:	Synthetic	
Dropping Point: (ASTM D2265)	≥300°F (≥149°C)	
Flash Point:	330°F (166°C)	
Brushable To:	-49°F (-45°C)	
Friction Factor:	1.0*	
Contains: Amorphous and synthetic		

graphite and other nonmetallic additives

DESCRIPTION

BESTOLIFE 3010® NM Special is a non-metallic thread compound ideal for all rotary-shouldered connections in any drilling location.

APPLICATIONS

Non-metallic compound for all drill-string connections (drill pipe/tool joints/drill collars) plus premium metal-to-metal seal casing and tubing connections.

TECHNICAL DATA

BESTOLIFE 3010® NM Special is the third generation of the highly successful BESTOLIFE 3000® family of compounds designed and developed to address the environmental concerns related to the use of thread compounds for rotary-shouldered connections in ecologically sensitive areas of the world such as the North Sea, Nova Scotia, Newfoundland, the South Atlantic, Alaska, and Sakhalin Island.BESTOLIFE 3010® NM Special combines the excellent low temperature application properties of BESTOLIFE 3010® Ultra with superior downhole galling resistance and enhanced eco-toxicological properties to provide the ideal drill-string solution for all rotary-shouldered connections applications (drill pipe/tool joints/drill collars), irrespective of offshore drilling location.

(continued on back)

PACKAGING

PRODUCT	CONTAINER	CONTAINER
NUMBER	SIZE	WEIGHT
656955	5 gallon	50 pounds metal



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.



BESTOLIFE 3010® NM SPECIAL

(continued from front)

It is also suitable for use on metal-to-metal seal casing and tubing connections.

- Applies easily to cold wet connections exposed to seawater in ambient temperatures as low as -49° F I -45°C and yet provides optimum protection in the deepest, hottest holes.
 Will provide lubrication and protection to 400°F/204°C and the solids will protect to 1000°F/538°C.
- Has the ability to prevent galling of contact surfaces (including non-magnetic materials) under high bearing loads and to form a continuous gasket between the shoulders of a rotary connection during make-up. This is achieved through the innovative combination of a variety of amorphous and synthetic graphite based materials, as first used in 3000®, interacting to form a seal when compressed between the shoulders during makeup to provide performance properties equal to the very best heavy metal compounds. This gasket-like seal prevents connection washout, even under high internal fluid pressures and the combined loading of directional drilling, to provide maximum protection in the toughest conditions.
- Meets the performance requirements of many proprietary, metal-to-metal seal casing and tubing connections.
- Approved for running all VAM connections in Carbon and 13% Cr. steels, except DINO VAM and Big Omega.

- Meets the current OSPAR Commission
 Harmonised Mandatory Control Scheme regulations for the protection of the marine environment of the North-East Atlantic/North Sea.
- In November 2004 became the FIRST Category # 9 - Yellow Pipe Dope Registered in the Norwegian CHEMSDatabase for use offshore by Statoil ASA in the Barents Sea.
- Subsequently registered in UK/Netherlands (DTI/CEFAS OCNS Category E/NL HMCS Prescreening Category:R) and Denmark (PR-No. 1796806)

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.







BESTOLIFE 3010® ULTRA



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

I RODOCI CHARACIERISTICS	
Color:	Black
Penetration: (ASTM D217)	320-350
NLGI Grade:	1
Weight/Gallon:	10.4 pounds/gallon
Thickener:	Calcium
Fluid Type:	Synthetic
Dropping Point: (ASTM D2265)	≥300°F (≥149°C)
Flash Point:	>310°F (>154°C)
Brushable To:	-49°F (-45°C)
Friction Factor:	1.0*
Contains: Amorphous and synthetic	
graphite and other non-metallic additives	

DESCRIPTION

BESTOLIFE 3010® Ultra is a non-metallic thread compound for rotary-shouldered connections and is effective for jack up systems. Heavy metal free for environmental concerns, the compound excels in low temperature and high temperature environments. 3010® Ultra prevents galling and seizing on even, non-magnetic surfaces, forming a gasket-like seal in a rotary connection for maximum protection in rough conditions.

APPLICATIONS

Non-metallic compound for rotary-shouldered connections in cold, wet conditions. Recommended for all drilling applications including high temperature environments.

TECHNICAL DATA

Like compounds that contain lead, zinc, and copper, 3010® Ultra has the ability to prevent galling of contact surfaces (including non-magnetic materials) under high bearing loads and to form a continuous gasket between the shoulders of a rotary connection during make-up. (continued on back)

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
656935	3 1/2 gallon	35 pounds plastic
656950	5 gallon	50 pounds plastic



^{*}API RP 7A 1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

DRILLING COMPOUND

BESTOLIFE 3010® ULTRA

(continued from front)

This is achieved through the innovative combination of a variety of amorphous and synthetic graphite based materials, as first used in 3000®, interacting to form a seal when compressed between the shoulders during makeup to provide performance properties equal to the very best heavy metal compounds.

- Meets the current OSPAR Commission
 Harmonised Mandatory Control Scheme
 (HOCNF) regulations for the protection of the marine environment of the North-East Altantic/

 North Sea.
- Registered in the UK/Netherlands as an OCNS Group E Chemical and in Norway as a Colour Category Yellow Pipe Dope.
- Registered in the Danish Produktregistret with PR-No. (Product Registration Number) 1367040.

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.





BESTOLIFE 4010® NM



5 Gallon Metal Pail

PRODUCT CHARACTERISTICS

Color:	Light Gray
Penetration: (ASTM D217)	300 - 330
NLGI Grade:	1
Weight/Gallon:	10.4 pounds/gallon
Thickener:	Calcium Complex
Fluid Type:	Synthetic
Dropping Point: (ASTM D2265)	≥550°F (≥288°C)
Flash Point:	396°F (202°C)
Brushable To:	-40°F (-40°C)
Friction Factor:	1.0*
Contains: Graphite and other nonmetallic additives	

DESCRIPTION

BESTOLIFE 4010® NM is the fourth generation of the BESTOLIFE family of non-metallic thread compounds for rotary-shouldered and premium connections, designed and developed to address environmental concerns in ecologically sensitive areas of the world.

APPLICATIONS

Non-metallic compound for rotary connections and proprietary premium self sealing casing/tubing connections. Effective for use on slides, jacking systems, cantilever type rigs and assemblies. Salt Spray Corrosion Protection for up to 1500 hours.

TECHNICAL DATA

BESTOLIFE 4010® NM is the fourth generation of the highly successful BESTOLIFE family of compounds designed and developed to address the environmental concerns related to the use of thread compounds for rotary-shouldered and premium connections, in ecologically sensitive areas of the world such as the North Sea, Nova Scotia, Newfoundland, the South Atlantic, Alaska, and Sakhalin Island. (continued on back)

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
658010	1 gallon	10 pounds plastic
658030	3 1/2 gallon	30 pounds plastic
658051	5 gallon	44 pounds metal



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.



BESTOLIFE 4010® NM

(continued from front)

BESTOLIFE 4010® NM combines the excellent low-temperature application properties of BESTOLIFE 3010® Ultra with superior downhole galling resistance and enhanced eco-toxicological properties to provide the ideal drill string solution for all rotary-shouldered (drill pipe/tool joints/drill collars) and many proprietary premium self-sealing casing/tubing connection applications, irrespective of offshore drilling location. It conforms to evaporation, gas evolution, oil separation, water leaching, copper corosion, and cold application at 19.4°F (-7°C).

- Applies easily to cold, wet connections exposed to seawater in ambient temperatures as low as -40°F/-40°C and yet provides optimum protection in the deepest, hottest holes. Will provide lubrication and protection to 600° F/316° C and the solids will protect to 1,000°F/538° C.
- Has the ability to prevent galling of contact surfaces (including non-magnetic materials) under high bearing loads and to form a continuous gasket between the shoulders of a rotary connection during makeup. This is achieved through the innovative combination of graphite and other non-toxic materials, which interact to form a seal when compressed between seals, threads, and shoulders during makeup to provide performance properties that are equal to the very best heavy metal compounds. This gasket-like seal prevents connection washout, even under high internal fluid pressures and the combined loading of directional drilling, to provide maximum protection in the toughest conditions.
- Meets the performance requirements of many proprietary metal-to-metal seal casing/tubing and high interference connection designs in Carbon Steel, 13 Cr., Super-Chrome and Duplex Steels.

- Approved make-up dope for VAM® connections made of Carbon Steel, 13% CR Steel, Super 13% CR and CRA (except Dino VAM®, Big OMEGA™ and some specific connections developed for customers). Conforms with ISO/DIS 13678 and API RP 5A3.
- Provides superior protection for the threaded connections of OCTG's during transit and long term storage.
- Meets the current OSPAR Commission
 Harmonised Mandatory Control Scheme
 (HOCNF) regulations for the protection of the marine environment of the North-East Atlantic/North Sea.
- Registered in 2008 for use in the UK/Netherlands as an OCNS Group E Clemical and in Norway as a Colour Category Yellow Pipe Dope.
- Registered in the Danish Produktregistret with PR-No. (Product Registration Number) 2068624.

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.







BESTOLIFE GGT-RSC-HT



5 Gallon Metal Pail

PRODUCT CHARACTERISTICS

Color:	Black	
Penetration: (ASTM D217)	300-320	
NLGI Grade:	1	
Weight/Gallon:	10.7 pounds/gallon	
Thickener:	Lithium Complex	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥500°F (≥260°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	15°F (-9°C)	
Friction Factor:	1.0*	
Contains: Synthetic and amorphous graphite and other nonmetallic additives		

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmosphere.

DESCRIPTION

BESTOLIFE GGT-RSC-HT is an economical non-metallic thread compound for rotary-shouldered connections. Recommended for light to medium duty drilling, the compound applies easily in a range of temperatures and conditions. GGT-RSC-HT is resistant to washout and will not harden or bleed excessively in storage.

APPLICATIONS

Non-metallic compound for rotary-shouldered connections.

TECHNICAL DATA

BESTOLIFE GGT-RSC-HT contains a high percentage of amorphous and synthetic graphite, as well as other inert solids, in a high-temperature base grease. In addition to the galling and seizing protection provided by the solids, GGT-RSC-HT also contains a soluble extreme pressure package that is surface active (adheres to metal surfaces) and helps to provide the load-carrying capability required by the high-bearing stresses present in rotary-shouldered connections. It is recommended for medium to heavy duty drilling. GGT-RSC-HT has obtained registration from NSF, National Sanitation Foundation.**

PACKAGING

PRODUCT	CONTAINER	CONTAINER
NUMBER	SIZE	WEIGHT
652251	5 gallon	50 pounds metal



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

^{**}NSF Registration No. 141561 Category Code: H2



PRODUCTION



BESTOLIFE 2000®



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

I RODUCT CHARACTERISTICS	
Color:	Dark Copper
Penetration: (ASTM D217)	310 - 330
NLGI Grade:	1
Weight/Gallon:	10.4 pounds/gallon
Thickener:	Lithium
Fluid Type:	Petroleum
Particle Size:	<450 microns
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)
Flash Point:	≥392°F (≥200°C)
Brushable To:	10°F (-12°C)
Friction Factor:	.9*
Contains: Inert nonmetallic solids and <4% copper flake	

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

Note: All package sizes are not listed. Call your sales representative for a complete listing.

DESCRIPTION

BESTOLIFE 2000® is a lead-free, zinc-free thread compound for casing, tubing, and line pipe. It is stable in high-pressure and high-temperature conditions. An excellent running compound, 2000® also provides superior protection for long-term storage.

APPLICATIONS

Premium lead-free API alternative for casing, tubing, and line pipe; contains no lead or zinc.

TECHNICAL DATA

BESTOLIFE 2000® will meet or exceed the listed performance objectives in API RP 5A3/ ISO 13678. The major solid components are a proprietary blend of nonmetallic materials that are inert to chemical attack, such as occurs in sour gas environments and with CO2 injection. BESTOLIFE 2000® also addresses one of the major concerns in pipe yards and threading operations today: rejects due to pitting and corrosion. In a 700-hour salt fog spray test, 2000® demonstrated corrosion protection that exceeds the performance of the leading storage compound in the industry. BESTOLIFE 2000® conforms to API RP 5A3 evaporation, gas evolution, oil separation, water leaching, copper corrosion and cold application at 19.4°F (-7°C) requirements.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
615009	1 gallon	9 pounds plastic
615018	2 gallon	18 pounds plastic
615030	3 1/2 gallon	30 pounds plastic
615045	5 gallon	45 pounds plastic



^{*}The proper field torque for all API casing and tubing connections should be determined by following the procedures out lined in API RP 5C1: "Recommended Practice for Care and Use of Casing and Tubing."

BESTOLIFE 72733



3 1/2 Gallon Metal Pail

PRODUCT CHARACTERISTICS

Color:	Dark Copper
Penetration: (ASTM D217)	310-330
NLGI Grade:	1
Weight/Gallon:	10.4 pounds/gallon
Thickener:	Lithium
Fluid Type:	Petroleum
Particle Size:	<300 microns
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)
Flash Point: (ASTM D92)	≥325°F (162.8°C)
Brushable To:	0°F (-18°C)
Friction Factor:	1.0*
Contains: Graphite, Lead, Zinc, Copper	

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE 72733 is a high pressure, high temperature thread compound for casing, tubing, and line pipe that exceeds API RP 5A3*/ISO 13678 and obsolete BUL 5A2. It includes a special corrosion inhibitor for superior corrosion resistance as compared to API Modified.

APPLICATIONS

High-pressure thread compound for casing, tubing, and line pipe.

TECHNICAL DATA

BESTOLIFE 72733 exceeds the performance requirements and objectives outlined in API RP 5A3*/ ISO 13678 and obsolete BUL 5A2. This superior thread compound protects connections against galling during make-up and breakout, prevents leakage at temperatures in excess of 300° F, and withstands pressure to 10,000 psi. BESTOLIFE 72733 resists water absorption, disintegration and volume changes, and will not harden, dry out, evaporate or oxidize. It contains special corrosion inhibitors to resist pitting and discoloration of threaded surfaces during field use and storage. Bestolife 72733 conforms to Evaporation, Gas Evolution, Oil Seperation, Water Leaching, Copper Corrosion and Cold Application at 19.4°F (-7°C). The Salt Spray Corrosion Protection is 900 hours.

PACKAGING

PRODUCT	CONTAINER	CONTAINER
NUMBER	SIZE	WEIGHT
613150	3 1/2 gallon	



^{*}API Recommended Practice 5A3: "Recommended Practice on Thread Compounds for Casing, Tubing, and Line Pipe": Second Edition, July 2003.

BESTOLIFE API MODIFIED



5 Gallon Metal Pail

PRODUCT CHARACTERISTICS

PRODUCT CHARACTERISTICS		
Color:	Dark Copper	
Penetration: (ASTM D217)	310-330	
NLGI Grade:	1	
Weight/Gallon:	15.8 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Particle Size:	<300 microns	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Friction Factor:	1.0*	
Contains: Powered graphite, lead powder, zinc dust, copper flake		

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE API Modified is a high temperature, high-pressure thread compound for casing, tubing, and line pipe. It meets or exceeds API RP 5A3/ISO 13678. This superior metallic compound stops corrosion and will not harden, dry out, evaporate, or oxidize.

APPLICATIONS

High-pressure thread compound for casing, tubing, and line pipe.

TECHNICAL DATA

BESTOLIFE API Modified meets or exceeds the performance requirements and objectives outlined in API RP 5A3/ISO 13678. The use of this superior thread compound protects against connection galling during makeup and breakout, prevents leakage at temperatures in excess of 300° F, and withstands pressure to 10,000 psi. BESTOLIFE API Modified resists water absorption, resists disintegration and volume changes, and will not harden, dry out, evaporate or oxidize. It contains H₂S and corrosion inhibitors to resist pitting and discoloration of threaded surfaces during field use and storage. BESTOLIFE API Modified conforms to evaporation, gas evolution, oil separation, water leaching, copper corrosion, and cold application at 19.4°F (-7°C).

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
613310	1 gallon	10 pounds plastic
613325	2 gallon	25 pounds plastic
613352	3 1/2 gallon	50 pounds metal
613371	5 gallon	70 pounds metal



^{*}API Recommended Practice 5A3: "Recommended Practice on Thread Compounds for Casing, Tubing, and Line Pipe": Second Edition, July 2003.

BESTOLIFE 2000® NM



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

I RODOCI CHARACIERISTICS		
Color:	Black	
Penetration: (ASTM D217)	310-330	
NLGI Grade:	1	
Weight/Gallon:	10.2 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265) ≥350°F (≥177°C)		
Flash Point:	≥392°F (≥200°C)	
Friction Factor:	.9*	
Contains: Proprietary blend of nonmetallic		

materials

BESTOLIFE 2000® NM conforms to evaporation, gas evolution, oil separation, water leaching, copper corrosion, and cold application at 19.4 °F (-7° C).

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE 2000® NM, the non-metallic alternative to API Modified, conforms to API RP 5A3/ISO 13678. Ideal for running and storing casing, tubing, and line pipe, 2000® NM provides high temperature performance, is inert to chemical attack, and protects against corrosion.

APPLICATIONS

Premium non-metallic alternative to API for casing, tubing, and line pipe.

TECHNICAL DATA

BESTOLIFE 2000® NM meets or exceeds the listed performance objectives in API RP 5A3/ISO 13678 as well as the requirements of API Specification 5CT. It also addresses one of the major concerns in pipe yards and threading operations today: rejects due to pitting and corrosion. In a 700-hour salt fog spray test, the base grease and additive package utilized in BESTOLIFE 2000® NM has demonstrated corrosion protection that exceeds the performance of the leading storage compound in the industry. The results of these tests show that BESTOLIFE 2000® NM is not only an excellent "running" compound but can also provide superior protection during long-term storage.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
616109	1 gallon	9 pounds plastic
616118	2 gallon	18 pounds plastic
616130	3 1/2 gallon	30 pounds plastic
616145	5 gallon	45 pounds plastic



^{*}The proper field torque for all API casing and tubing connections should be determined by following the procedures outlined in API RP 5C1: "Recommended Practice for Care and Use of Casing and Tubing".

BESTOLIFE 2010® NM ULTRA



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Black	
Penetration: (ASTM D217)	320-350	
NLGI Grade:	1	
Weight/Gallon:	10.7 pounds/gallon	
Thickener:	Calcium	
Fluid Type:	Synthetic	
Dropping Point: (ASTM D2265) ≥300°F (≥149°C)		
Flash Point: ≥310°F (≥154°C)		
Brushable To: -49°F (-45°C)		
Friction Factor: .9*		
Contains: Amorphous and synthetic		
graphite and other non-metallic additives		

^{*}The proper field torque for all API casing and tubing connections should be determined by following the procedures outlined in API RP 5C1: "Recommended Practice for Care and Use of Casing and Tubing".

DESCRIPTION

BESTOLIFE 2010® NM Ultra is a non-metallic thread compound for casing, tubing, and line pipe connections. It delivers optimum performance in all types of conditions and wells.

APPLICATIONS

Premium non-metallic alternative to API for casing, tubing, and line pipe in cold, wet conditions.

TECHNICAL DATA

2010® NM Ultra was developed to address the environmental concerns and costs related to the use of thread compounds for casing, tubing, and line pipe connections that contain high percentages of metals, such as lead, copper and zinc. The improvement of proven industry standard BESTOLIFE 2000® and 2000® NM with enhanced low-temperature application/adherence properties has resulted in formulations designed for use in the coldest, wettest operating conditions, like those found in the North Sea, Nova Scotia/Newfoundland and the South Atlantic. (continued on back)

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
616218	2 gallon	18 pounds plastic
616230	3 1/2 gallon	30 pounds plastic
616245	5 gallon	45 pounds plastic





BESTOLIFE 2010® NM ULTRA

(continued from front)

2010® NM Ultra, the non-metal alternative to API Modified, conforms with ISO 13678 and API RP 5A3. 2010® NM Ultra meets or exceeds the listed performance objectives in ISO 13678 and API RP 5A3, as well as the requirements of API Specification 5CT. It is suitable for use with premium, self-sealing connections. The major solid components of 2010® NM Ultra are an innovative combination of non-metallic materials that are inert to chemical attack, such as occurs in sour gas environments and with CO₂ injection, and stable to temperatures in excess of 400° F/204° C.

2010® NM Ultra applies easily to cold, wet connections exposed to seawater in ambient temperatures as low as -45° C/49° F and yet delivers optimum performance in all types of wells. The grease in 2010® NM Ultra will provide lubrication and protection to 400° F/204°C. 2010® NM Ultra exceeds 2,000 hours in ASTM 8117 salt spray corrosion test, and conforms to API RP 5A3 evaporation, gas evolution, oil separation, water leaching, and cold application at 19.4°F (-7°C) requirements.

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.





BESTOLIFE PTC



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Black	
Penetration: (ASTM D217)	320-340	
NLGI Grade:	1	
Weight/Gallon:	9.1 pounds/gallon	
Thickener:	Lithium Complex	
Fluid Type:	Petroleum	
Dropping Point: ≥500°F (≥260°C)		
Flash Point: ≥392°F (≥200°C)		
Brushable To: 15°F (-9°C)		
Friction Factor: .8*		
Contains: Synthetic graphite, PTFE, and other nonmetallic additives		

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE PTC is a nonmetallic thread compound for premium self-sealing connections. A blend of synthetic graphite and PTFE that is inert to chemical attack, PTC protects against galling of high alloy steels.

APPLICATIONS

Non-metallic compound for premium, self-sealing connections.

TECHNICAL DATA

PTC is a nonmetallic thread compound developed specifically for premium, self-sealing connections. It contains a proprietary blend of synthetic graphite and fine PTFE powder that is inert to chemical attack and protects against galling of high alloy steels. The reduced solids content and small particle sizing of PTC will not interfere with proper seal face contact. PTC is formulated with a high-temperature base grease which will provide lubrication at temperatures in excess of 500° F. PTC conforms to evaporation, gas evolution, oil separation, water leaching, and cold application at 19.4°F (-7°C) requirements.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
652608	1 gallon	8 pounds plastic
652616	2 gallon	16 pounds plastic
652643	5 gallon	43 pounds plastic



 $^{{\}rm ^*Value}$ obtained on NEW VAM $^{\rm @}$ connection. Torque factor may vary for different connection designs.

BESTOLIFE PTC-ST



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Black	
Penetration: (ASTM D217)	320-340	
NLGI Grade:	1	
Weight/Gallon:	9.1 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265) ≥350°F (≥177°C)		
Flash Point: ≥392°F (≥200°C)		
Brushable To: 10°F (-12°C)		
Friction Factor: .8*		
Contains: Synthetic graphite, PTFE, and other nonmetallic additives		

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE PTC-ST is a non-metallic thread compound for premium self-sealing connections. It combines the non-galling formula of PTC with a low-bleed corrosion-resistant base to provide long-term protection in field storage.

APPLICATIONS

Non-metallic compound for premium, self-sealing connections and storage.

TECHNICAL DATA

PTC-ST is a non-metallic thread compound developed specifically for premium, self- sealing connections. It contains a proprietary blend of synthetic graphite and fine PTFE powder that is inert to chemical attack and protects against galling of high alloy steels. The reduced solids content and small particle sizing of PTC-ST will not interfere with proper seal face contact. PTC-ST is formulated with a "low-bleed," corrosion resistant base grease that will provide long-term corrosion protection in field storage when applied according to manufacturer's recommendations. Conforms to evaporation, gas evolution, oil separation, water leaching and cold application at 19.4°F (-7°C) requirements.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
652408	1 gallon	8 pounds plastic
652416	2 gallon	16 pounds plastic
652443	5 gallon	43 pounds plastic



^{*}Value obtained on NEW VAM® connection. Torque factor may vary for different connection designs. NEW VAM® is a registered trademark of Vallourec Industries

BESTOLIFE METAL FREE



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Black		
Penetration: (ASTM D217)	310-330		
NLGI Grade:	1		
Weight/Gallon:	9.1 pounds/gallon		
Thickener:	Lithium		
Fluid Type:	Petroleum		
Dropping Point: (ASTM D2265) ≥350°F (≥177°C)			
Flash Point: ≥392°F (≥200°C)			
Brushable To: 10°F (-12°C)			
Friction Factor: .9*			
Contains: Synthetic and amorphous graphite, PTFE, and other nonmetallic			

*The proper field torque for all API casing and tubing connections should be determined by following the procedures outlined in API RP 5C1: "Recommended Practice for Care and Use of Casing and Tubing".

Metal Free conforms to evaporation, gas evolution, oil separation, water leaching and cold application at 19.4°F (-7°C) requirements.

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE Metal Free is a non-metallic thread compound for API OCTG and BTC. A blend of synthetic and amorphous graphite, PTFE, and other non-metallic additives, Metal Free contains no toxic materials. It delivers galling and thread protection and conforms to API RP 5A3/ISO 13678.

APPLICATIONS

Economical, non-metallic compound for maximum protection. Metal Free is a running compound, and not designed to be used as a storage compound.

TECHNICAL DATA

Metal Free is an economical, nonmetallic thread compound developed to meet or exceed the performance objectives of API RP 5A3 when used on API OCTG and BTC Connections. It contains a proprietary blend of synthetic and amorphous graphite and fine PTFE powder that is inert to chemical attack. Metal Free will protect against galling and thread damage and seal effectively to pressures as high as 10,000 psi and temperatures in excess of 300° F. It contains no toxic materials that exceed the regulatory limits established by the EPA or by the California hazardous waste regulations.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
652709	1 gallon	9 pounds plastic
652718	2 gallon	18 pounds plastic
652730	3 1/2 gallon	30 pounds plastic
652744	5 gallon	44 pounds plastic

Note: All package sizes are not listed. Call your sales representative for a complete listing.



additives

BESTOLIFE GGT



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Black	
Penetration: (ASTM D217)	310-330	
NLGI Grade:	1	
Weight/Gallon:	10.2 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: ≥350°F (≥177°C)		
Flash Point: ≥392°F (≥200°C)		
Brushable To: 10°F (-12°C)		
Friction Factor:	riction Factor: 1.0*	
Contains: Synthetic graphite, PTFE, and other nonmetallic additives		

*API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE GGT is a non-metallic compound for water well casing, pump columns, and light duty applications.

APPLICATIONS

Graphite-based compound.

TECHNICAL DATA

Formulated primarily for water well casing and pump columns, GGT contains a high percentage of graphite and other inert solids that provide thread protection and sealing over a wide range of conditions and temperatures. The high quality base grease provides both corrosion protection and water resistance. GGT's excellent sealing properties, thermal stability and resistance to corrosion and water washout make it an ideal thread sealant and lubricant for any threaded connection where contact bearing stresses are not extreme.GGT will adhere to wet surfaces, will apply readily over a wide range of temperatures and will not harden with exposure or age. Contains no heavy metals such as lead, zinc or copper.

PACKAGING

PRODUCT	CONTAINER	CONTAINER
NUMBER	SIZE	WEIGHT
652050	5 gallon	50 pounds plastic



BESTOLIFE ZN-18



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Gray	
Penetration: (ASTM D217)	300-320	
NLGI Grade:	1	
Weight/Gallon:	12.5 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	≥392°F (≥200°C)	
Brushable To:	10°F (-12°C)	
Contains: Zinc and other nonmetallic additives		

DESCRIPTION

BESTOLIFE ZN-18 is a zinc-based thread compound designed to resist corrosion, pitting, and discoloration on threaded connections.

APPLICATIONS

Zinc-based compound for light duty drilling.

TECHNICAL DATA

ZN-18 will provide galling and seizing protection for threaded connections used in light duty applications. Contains 18% powdered metallic zinc, as well as H_2S , rust and corrosion inhibitors.

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
620015	2 gallon	15 pounds plastic
620060	5 gallon	60 pounds plastic



^{*}API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.



BESTOLIFE STORAGE COMPOUND



5 Gallon Metal Pail

PRODUCT CHARACTERISTICS

	2101211101110	
Color:	Off-White	
Penetration: (ASTM D217)	330-350	
NLGI Grade:	1	
Weight/Gallon:	8.1 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Petroleum	
Flash Point:	≥399°F (≥204°C)	
Contains: Corrosion and oxidation inhibitors and polymers		

PACKAGING

PRODUCT	CONTAINER	CONTAINER
NUMBER	SIZE	WEIGHT
640235	5 gallon	35 pounds metal

Note: All package sizes are not listed. Call your sales representative for a complete listing.

DESCRIPTION

BESTOLIFE Storage Compound (BSC) provides long-term storage protection for threaded surfaces in a variety of conditions. Laboratory tests confirm superior storage protection based on 4,000 lab hours which is equivalent to 4 years.

APPLICATIONS

For long-term storage. Salt Spray Corrision Protection up to 4,000 hours.

TECHNICAL DATA

BSC is a long-term storage compound designed to protect all types of threaded surfaces from rust and corrosion caused by exposure to different types of atmospheric and environmental storage conditions. Salt spray tests comparing this compound with other commercially available storage compounds have proved the superior corrosion resistance of BSC.

BSC applies easily in all working conditions and will not run off or "bleed" at high temperatures. To assure a good seal and protect against galling threads, all storage compounds should be cleaned off before a thread compound is applied. Thread compounds can become liquid and run off connections causing sealing and galling problems, when they are incompatible with storage compounds.

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.





INDUSTRIAL



BESTOLIFE C-55



3 1/2 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Black	
Penetration: (ASTM D217)	265 - 285	
NLGI Grade:	2	
Weight/Gallon:	21.3 pounds/gallon	
Thickener:	Lithium Complex	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥500°F (≥260°C)	
Flash Point:	≥392°F (≥200°C)	
Friction Factor:	1.0*	
Contains: Over 60% metallic lead and other		

*API RP 7A1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections" NOTE: Due to operation and equipment variables, this value may require adjustment based on field experience.

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

C-55 is a lead-based thread compound for rock drill steel joints, couplings, and bits, formulated to withstand the stresses and temperatures of percussion rock drilling. C-55 will not melt or leave burnt residue to bind threads, and is suitable for all rotary drilling joints.

APPLICATIONS

Rock drill thread lubricant. Recommended for coal drilling, percussion rock drilling, blast hole drilling, all rotary joints, road construction, logging, mining, pneumatic drilling and track drills.

TECHNICAL DATA

BESTOLIFE C-55 is formulated to withstand the stresses and temperatures encountered in percussion rock drilling. Continuous use retards galling and thread wear and provides easy breakout of all threaded connections. Resists water and corrosion, will not melt or "coke", leaving burnt residue to bind threads. C-55 is suitable for all types of rotary drilling joints. Contains over 60% finely powdered metallic lead.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
611114	1 gallon	14 pounds plastic
611150	3 1/2 gallon	50 pounds plastic

Note: All package sizes are not listed. Call your sales representative for a complete listing.



non-metallic additives

COPPER ROCK



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

TROBUGI GINALUTGI ZIMBITOS		
Color:	Copper	
Penetration: (ASTM D217)	275 - 295	
NLGI Grade:	2	
Weight/Gallon:	10.9 pounds/gallon	
Thickener:	Lithium Complex	
Dropping Point: (ASTM D2265)	≥500°F (≥260°C)	
Flash Point:	>399.2°F (>204°C)	
Friction Factor:	1.2*	
Contains: Copper flake, graphite, and other non-metallic additives		

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE Copper Rock is a lead-free, zinc-free thread compound for rock drill steel joints, couplings, and bits. It provides galling and seizing resistance and surface-active extreme pressure protection.

APPLICATIONS

Non-lead rock drill thread compound. Recommended for coal drilling, percussion rock drilling, blast hole drilling, all rotary joints, road construction, logging, mining, pneumatic drilling and track drills.

TECHNICAL DATA

Copper Rock has been developed as an answer to the environmental restrictions and exposure concerns associated with the use of lead and zinc based thread compounds. It contains a high percentage of copper flake combined with a proprietary blend of amorphous and synthetic graphite in a premium quality, high temperature, base grease. In addition to the galling and seizing protection provided by the solids, Copper Rock also contains a soluble, extreme pressure package that is surface active (adheres to metal surfaces) and helps to provide the load carrying capability required by the high bearing stresses experienced in rotary-shouldered connections, and particularly in percussion rock drilling.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
636010	1 gallon	10 pounds plastic
636050	5 gallon	50 pounds plastic



^{*}API RP 7 A 1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections". Note: Due to operation and equipment variables, this value may require adjustment based on field experience.

COPR 99 PUMPABLE



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Copper	
Penetration: (ASTM D217)	340 - 370	
NLGI Grade:	0-1	
Weight/Gallon:	9.9 pounds/gallon	
Thickener:	Lithium	
Fluid Type:	Synthetic	
Dropping Point: (ASTM D2265)	≥350°F (≥177°C)	
Flash Point:	>430°F (>220°C)	
Friction Factor:	1.0*	
LT 37 Mobility @ -10°F:	Conforms	
Contains: Copper flake, amorphous and		

Contains: Copper flake, amorphous and synthetic graphite, and proprietary additive package

*API RP 7 A 1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections". Note: Due to operation and equipment variables, this value may require adjustment based on field experience.

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

Note: All package sizes are not listed. Call your sales representative for a complete listing.

DESCRIPTION

BESTOLIFE Copr 99 Pumpable is a pumpable lead-free, zinc-free thread compound for rotary-shouldered connections. It provides galling and seizing protection and support for high bearing stress. It applies easily in a wide range of temperatures and conditions, resists washout, and will not harden or bleed excessively in storage.

APPLICATIONS

Economical copper/PTFE pumpable compound for rotary-shouldered connections. Recommended for all drilling applications (rotary-shouldered connections).

TECHNICAL DATA

Copr 99 Pumpable was developed to handle low temperature application and adherence problems found by drillers in rotary-shouldered connections and pumps easily. Copr 99 Pumpable is a non-lead, non-zinc compound designed for all types of drilling applications. It addresses the environmental concerns and costs of using thread compounds that contain these hazardous metals. Copr 99 Pumpable combines copper flake with a proprietary combination of graphite, non-metallic solids, and extreme pressure additives. Copr 99 Pumpable has a torque correction factor of 1.1 (10% additional torque required) which will provide additional resistance to downhole make up as compared to lead (API Modified) or zinc compounds.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
655710	1 gallon	10 pounds plastic
655720	2 gallon	20 pounds plastic
655750	5 gallon	50 pounds plastic



SUPR COPR



2 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:	Copper	
Penetration: (ASTM D217)	310-330	
NLGI Grade:	1	
Weight/Gallon:	10.7 pounds/gallon	
Thickener:	Lithium Complex	
Fluid Type:	Petroleum	
Dropping Point: (ASTM D2265)	≥500°F (≥260°C)	
Flash Point:	>392°F (>200°C)	
Friction Factor: 1.2*		
Contains: >14% Copper flake, synthetic graphite, and other non-metallic additives.		

*API RP 7 A 1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections". Note: Due to operation and equipment variables, this value may require adjustment based on field experience.

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

DESCRIPTION

BESTOLIFE Supr Copr is a lead-free, zinc-free compound for high temperature applications. Supr Copr can also be used for rotary-shouldered connections and premium self-sealing tubing and casing in high temperature environments. It is available in small containers with brush-top lids.

APPLICATIONS

Copper-based compound for deep and shallow wells; free of lead and graphite. Recommended for drill collars, tool joints, all rotary-shouldered connections, tubing and fishing tools. Suited for use on all threaded and flanged connections, studs, bolts and screws in high temperature environments.

TECHNICAL DATA

Supr Copr is a multipurpose anti-seize thread compound developed specifically for use in high temperature applications. The high copper content (>14%) combined with a premium quality, high temperature lithium complex grease, will resist galling and seizing of rotary-shouldered connections to temperatures in excess of 600°F. Contains no lead or zinc.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
634001	1/2 pint	1/2lb (12/case)
634004	1 pint	1lb (12/case)
634003	1 quart	2lb (6/case)
634008	1 gallon	8lb plastic
634020	2 gallon	20lb plastic
634040	5 gallon	40lb plastic



COPR PLUS



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

PRODUCT CHARACTERISTICS					
Color:	Copper				
Penetration: (ASTM D217)	310-340				
NLGI Grade:	1				
Weight/Gallon:	10.2 pounds/gallon				
Thickener:	Calcium				
Fluid Type:	Synthetic				
Dropping Point: (ASTM D2265)	≥300°F (≥149°C)				
Flash Point: >430°F (>220°C)					
Brushable To:	-49°F (-45°C)				
Friction Factor: 1.1*					
Contains: Copper flake, amorphous and synthetic graphite, and proprietary additive					

*API RP 7 A 1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections". Note: Due to operation and equipment variables, this value may require adjustment based on field experience.

A safety data sheet is available from the manufacturer.

Note: All package sizes are not listed. Call your sales representative for a complete listing.

DESCRIPTION

BESTOLIFE Copr Plus is a non-lead, non-zinc thread compound for rotary-shouldered connections. It provides galling and seizing protection for all types of wells under any environmental condition.

APPLICATIONS

Multipurpose thread compound for rotary-shouldered connections. Recommended for all drilling applications (rotary-shouldered connections).

TECHNICAL DATA

Copr Plus was developed to handle low-temperature application and adherence problems found by drillers in rotary-shouldered connections. It addresses the environmental concerns and costs of using thread compounds that contain hazardous metals. Copr Plus combines copper flake with a proprietary combination of graphite, non-metallic solids, and extreme pressure additives. The solid additives provide galling and seizing protection and the extreme pressure additive package provides the load carrying capability to handle the high bearing stresses found in rotary-shouldered connections. Copr Plus applies easily to cold wet connections exposed to seawater in ambient temperatures as low as -49°F/-45°C and yet delivers optimum performance in all types of wells. The grease in Copr Plus will provide lubrication and protection to 400°F/204°C and the solids will protect to 1000°F/538°C.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
635710	1 gallon	10 pounds plastic
635720	2 gallon	20 pounds plastic
635730	3 1/2 gallon	30 pounds plastic
635750	5 gallon	50 pounds plastic



package.

COPR PLUS PUMPABLE



5 Gallon Plastic Pail

PRODUCT CHARACTERISTICS

Color:CopperPenetration: (ASTM D217)340-370NLGI Grade:0-1Weight/Gallon:9.9 pounds/gallonThickener:CalciumFluid Type:SyntheticDropping Point: (ASTM D2265)≥350°F (≥177°C)Flash Point:>430°F (>220°C)Brushable To:-49°F (-45°C)Friction Factor:1.1*LT 37 Mobility @ -40°F:Conforms					
(ASTM D217) 340-370 NLGI Grade: 0-1 Weight/Gallon: 9.9 pounds/gallon Thickener: Calcium Fluid Type: Synthetic Dropping Point: ≥350°F (≥177°C) (ASTM D2265) >430°F (>220°C) Brushable To: -49°F (-45°C) Friction Factor: 1.1* LT 37 Mobility @ Conforms	Color:	Copper			
Weight/Gallon:9.9 pounds/gallonThickener:CalciumFluid Type:SyntheticDropping Point: (ASTM D2265)≥350°F (≥177°C)Flash Point:>430°F (>220°C)Brushable To:-49°F (-45°C)Friction Factor:1.1*LT 37 Mobility @Conforms		340-370			
Thickener: Calcium Fluid Type: Synthetic Dropping Point: ≥350°F (≥177°C) Flash Point: >430°F (>220°C) Brushable To: -49°F (-45°C) Friction Factor: 1.1* LT 37 Mobility @ Conforms	NLGI Grade:	0-1			
Fluid Type: Synthetic Dropping Point: ≥350°F (≥177°C) Flash Point: >430°F (>220°C) Brushable To: -49°F (-45°C) Friction Factor: 1.1* LT 37 Mobility @ Conforms	Weight/Gallon:	9.9 pounds/gallon			
Dropping Point: (ASTM D2265)≥350°F (≥177°C)Flash Point:>430°F (>220°C)Brushable To:-49°F (-45°C)Friction Factor:1.1*LT 37 Mobility @Conforms	Thickener:	,			
(ASTM D2265) Flash Point: >430°F (>220°C) Brushable To: -49°F (-45°C) Friction Factor: 1.1* LT 37 Mobility @ Conforms	Fluid Type:	Synthetic			
Brushable To: -49°F (-45°C) Friction Factor: 1.1* LT 37 Mobility @ Conforms		≥350°F (≥177°C)			
Friction Factor: 1.1* LT 37 Mobility @ Conforms	Flash Point:	>430°F (>220°C)			
LT 37 Mobility @ Conforms	Brushable To:	-49°F (-45°C)			
Contorms	Friction Factor:	1.1*			
	· · · · · · · · · · · · · · · · · · ·	Conforms			

Contains: Copper flake, amorphous and synthetic graphite, and proprietary additive package.

*API RP 7 A 1: "Recommended Practice for Testing of Thread Compound for Rotary-Shouldered Connections". Note: Due to operation and equipment variables, this value may require adjustment based on field experience.

A safety data sheet is available from the manufacturer.

Note: All package sizes are not listed. Call your sales representative for a complete listing.

DESCRIPTION

BESTOLIFE Copr Plus Pumpable is a non-lead, non-zinc thread compound for rotary-shouldered connections, developed for applications with automatic units. Copr Plus Pumpable provides galling and seizing protection for all types of wells under any environmental condition.

APPLICATIONS

Pumpable multipurpose thread compound for rotary-shouldered connections. Recommended for all drilling applications (rotary-shouldered connections).

TECHNICAL DATA

Copr Plus Pumpable was developed to handle low-temperature application and adherence problems rotary-shouldered connections. Copr Plus Pumpable is a non-lead, non-zinc compound designed for all types of drilling applications. Copr Plus Pumpable has a torque correction factor of 1.1 (10% additional torque required), which will provide additional resistance to downhole make up as compared to lead (API Modified) or zinc compounds. Copr Plus Pumpable applies easily to cold wet connections exposed to seawater in ambient temperatures as low as -49°F/-45°C and yet delivers optimum performance in all types of wells. The grease in Copr Plus Pumpable will provide lubrication and protection to 400°F/204°C and the solids will protect to 1000°F/538°C.

PACKAGING

PRODUCT NUMBER	CONTAINER SIZE	CONTAINER WEIGHT
635701	tube	18oz. (50/case)
635711	1 gallon	10 pounds plastic
635721	2 gallon	20 pounds plastic
635751	5 gallon	50 pounds plastic





MISCELLANEOUS



BEE-LOK



Bee-Lok Thread Lock Kit

PRODUCT CHARACTERISTICS

OUTER CASING DIAMETER (IN.)	APPROXIMATE USES PER 8 OZ. KIT
4 ½	10
5 ½	6
6 5/8	4
7 % - 9 %	3
10 ¾ - 13 ⅓	2

CONNECTION TYPE	FRICTION FACTOR
Rotary Shouldered	0.9 - 1.0
Non-interference tubing and casing	1.3 - 2.0

DESCRIPTION

Bee-Lok is an economical, two-component epoxy system designed to replace welding for locking casing joints on the bottom lengths. It contains 25% metallic zinc, which aids sealing and reduces joint galling. This product is effective in preventing joint loosening. Each kit contains a base resin, catalyst, and an applicator.

APPLICATION

To apply, empty the catalyst into the base epoxy resin and mix thoroughly. Use the applicator (flat knife) to cover the male threads with the mixture and makeup the connection. The pot life of the mixture is 75 minutes under normal conditions. The cure time is 24 hours. To break connections, heat the joint from 500°-600° F.

NOTES

A safety data sheet is available from the manufacturer. Do not use on oxygen lines or in oxygen enriched atmospheres.

PACKAGING

CONTAINER SIZE	SHIPPING WEIGHT	QUANTITY PER CASE		
8 oz.	9 lb.	12		
16 oz.	9 lb.	6		



DOPE BRUSHES



12 and 36-inch Dope Brushes

DESCRIPTION

- Standard #2 Bristles designed for uniform application of compound
- 12" or 36" Heavy duty wooden handles
- Plastic hand guards on 12" model
- Packaged 12 per case
- 36" Handled brush available for HOD application



MUSTACHE DOPE BRUSH



Angled Mustache Dope Brush

DESCRIPTION

- Bristles designed for uniform application of compound
- Recommended for use on 8rd, BTC, line pipe and specialized tubing and casing threads
- Angled handle for ease of application of both box and pin



PLASTIC PAIL OPENER



Aluminum Tool For Plastic Pails

DESCRIPTION

- Three tools in one versatile product
- Opens 1, 2, 3 ½, and 5 gallon plastic pails
- Plastic pail lid cutter
- Equipped with hammer face to reattach lid
- Lightweight aluminum design





REFERENCE





RECOMMENDED DOPING PROCEDURES FOR ROTARY-SHOULDERED CONNECTIONS

BESTOLIFE recommends the following procedures for the application and use of our thread compounds on rotary-shouldered connections:

COMPOUND PREPARATION AND CONTAMINATION

Upon opening the container, stir the product with either a dope brush or other suitable device to blend the oil and/or the component solids that may have settled during shipment and storage. Stirring is particularly critical for high-density materials such as lead and zinc, and for high-temperature (>90° F) storage conditions. Upon opening, take care to protect the compound from contamination such as drilling fluids, water, dirt, and other debris. Never add material (diesel fuel, kerosene, motor oil, etc.) to the compound to improve ease of application — such contamination or adulteration can change the friction factor and degrade galling resistance properties.

CONNECTION SURFACE PREPARATION

All connection contact surfaces should be clean and free of drilling fluids and other contaminant residues prior to the application of the compound. Contamination with drilling fluids, which contain large amounts of solids and cutting residues, can substantially change the friction factor of the thread compound and, consequently, alter the amount of makeup for a given applied torque. In addition, the solids present in drilling fluids and muds can promote galling and degrade the thread compound's galling resistance properties. Polymer-based mud systems can leave residue on the connection that will adversely affect its

adherence. A substantial amount of water will also negatively affect the compound's adherence to the connection surfaces. (Small amounts of moisture, which often are unavoidable, will not affect compound performance.)

COMPOUND APPLICATION

Apply the thread compound liberally and uniformly to the entire contact surface of both the pin and box. The frequent practice of slapping a "gob" of pipe dope on one side of the pin or box and trusting the pipe rotation during makeup to distribute the compound over the connection surface is not sufficient for uniform application. Work the compound into the thread roots to completely cover the shoulder surface. When doping pins during tripping or when the pipe is on a rack, take care to ensure that the compound does not pick up floor contaminants (dried mud, cuttings, etc.) when standing the string on the rig floor prior to running. Ideally, install protectors on the pins after doping and remove them just prior to stabbing on the rig floor to eliminate a source of compound contamination and also reduce pin nose damage during pipe stand-up.

CONNECTION BREAK-IN / NONMAGNETIC MATERIALS

Establish a break-in procedure for new or newly refaced connections consisting of 2-3 low-torque, slow-speed makeups at 50-75% of final makeup torque prior to running. This practice will burnish and harden the connection surfaces prior to the application of full contact stress, and will greatly improve resistance to galling. (continued on back)





RECOMMENDED DOPING PROCEDURES FOR ROTARY-SHOULDERED CONNECTIONS

(continued from front)

Nonmagnetic materials such as Monel and martensitic chromes are extremely prone to galling. Depending on operating conditions, these materials may require a 60% lead-based compound to resist galling damage. Lead is particularly effective for galling resistance due to its inherent lubricity and ability to "smear out" and plate on the connection contact surfaces during makeup.





RECOMMENDED DOPING PROCEDURES FOR CASING/TUBING CONNECTIONS

BESTOLIFE recommends the following procedures for the application and use of our thread compounds on casing/tubing connections:

COMPOUND PREPARATION AND CONTAMINATION

Upon opening the container, stir the product with either a dope brush or other suitable device to blend the oil and/or the component solids that may have settled during shipment and storage. Upon opening, take care to protect the compound from contamination such as drilling fluids, water, dirt, and other debris. Never add material (diesel fuel, kerosene, motor oil, etc.) to the compound to improve ease of application — such contamination or adulteration can change the friction factor and degrade galling resistance properties.

CONNECTION SURFACE PREPARATION

Tube Mill, Threading, Inspection and Pipe yard Operations

All connection contact surfaces should be clean and free of moisture and contaminants (including storage compounds) prior to the application of the thread compound, whether intended for storage only or as a "running" compound. Corrosion effects are the result of an electrolytic process in which both water and dissolved ions (chlorides, sulfides, sulfates, and other dissolved ions) serve together as an electrolyte.

Most corrosion inhibitors are "surface active," meaning that the active molecules attach themselves to metal surfaces to prevent access by corrosion-causing contaminants. If, however,

the contaminants are present on the threaded surface prior to application of the thread/storage compound, they will be trapped against the surface and cause corrosion.

Simply drying the surface with compressed air is insufficient, because when the moisture evaporates, dissolved contaminants remain on the surface. To remove moisture and contaminants, apply a de-watering fluid/corrosion inhibitor to threaded surfaces. Remove excess inhibitor from the thread surface before compound application.

Running Offshore

Thoroughly clean and dry all tubular connections (including removal of storage compound) at the rig prior to inspection and application of thread compound. Take care to ensure that the cleaning process does not cause environmental pollution.

COMPOUND APPLICATION

After the connection is clean and dry, inspect and remove any brush bristles left on the threads/seals from the cleaning process.

Apply a light, even coating of thread compound over the entire thread and seal areas of the pin and box, leaving the thread form clearly visible. The frequent practice of slapping a "gob" of pipe dope on one side of the pin or box and trusting the pipe rotation during makeup to distribute the compound over the connection surface is not sufficient for uniform application. Work the compound into the thread roots to completely cover the entire thread and seal areas of the pin and box. (continued on back)





RECOMMENDED DOPING PROCEDURES FOR CASING/TUBING CONNECTIONS

(continued from front)

If doping the pins when the pipe is on a rack, take care to ensure that the compound does not pick up contaminants (e.g. dried mud, cuttings, etc.) from the floor when standing the string up prior to running. Ideally, install protectors on the pins after doping and remove them just prior to stabbing on the rig floor.

Good handling, cleaning, and thread compound application procedures are key elements for a successful makeup job.





RECOMMENDED THREAD COMPOUND APPLICATION PROCEDURES FOR LONG-TERM STORAGE

BESTOLIFE recommends the following procedures for the application and use of our thread compounds on tubulars prior to long-term storage:

CONTROL OF PROCESS CONDITIONS

A variety of process conditions can accelerate the corrosion and pitting of threaded surfaces:

- Composition and type of cutting fluids and hydrostatic test fluids
- Contaminants such as chlorides and sulfides in process fluids
- pH of process fluids
- Bacterial growth in process fluids

These factors must be addressed, monitored, and controlled to ensure that post-process treatment for long-term storage will be effective.

THREAD SURFACE PREPARATION AND CONTAMINATION

All connection contact surfaces should be clean and free of moisture and contaminants (including storage compounds) prior to the application of the thread compound, whether intended for storage only or as a "running" compound. Corrosion effects are the result of an electrolytic process in which both water and dissolved ions (chlorides, sulfides, sulfates, and other dissolved ions) serve together as an electrolyte.

Most corrosion inhibitors are "surface active," meaning that the active molecules attach themselves to metal surfaces to prevent access by corrosion-causing contaminants. If, however, the contaminants are present on the threaded surface prior to application of the thread/

storage compound, they will be trapped against the surface and cause corrosion. Simply drying the surface with compressed air is insufficient, because when the moisture evaporates, dissolved contaminants remain on the surface.

To remove moisture and contaminants, apply a de-watering fluid/corrosion inhibitor to threaded surfaces. Remove excess inhibitor from the thread surface before compound application.

COMPOUND APPLICATION

The primary difference in the functional properties of storage-only compounds and compounds with storage capabilities (hybrid compounds) is in one physical property: viscosity. Since storage compounds are more fluid than running compounds, the method of application is not a critical factor.

Once applied, storage compounds flow readily around the thread surface and flow easily between the clearances of an installed thread protector. Running compounds, however, are fairly stiff and contain a high volume of solid materials. Take care to apply a uniform coating over a threaded surface. After application of the compound to the pin and installation of the thread protector, the protector will push the compound away from the pin nose and, in most cases, leave voids that allow moisture to enter between the protector and the threaded surface.

To assure an even distribution of running compound under the protector and eliminate voids near the pin, apply a small amount of compound to the inside of the **(continued on back)**





RECOMMENDED THREAD COMPOUND APPLICATION PROCEDURES FOR LONG-TERM STORAGE

(continued from front)

pin protector prior to installation.

This will force the compound to spread in both directions inside the protector as it is installed. Ideally, a small amount of excess compound will extrude from both ends of the protector, the pin nose, and the base of the threads. The excess material will seal off the protector from ambient moisture and prevent water from entering and being trapped between the protector and the threaded surface.

If using thread compound and screw-on test caps for hydrostatic testing, remove the compound that is contaminated with the hydrostatic test fluid and clean the thread surfaces as described above prior to the final application of any storage or hybrid compound.

THREAD PROTECTORS

Thread protector material and design can have a significant influence on the incidence of pitting and corrosion in long-term storage. A major drawback of the metal protectors widely used 10-15 years ago what that they promoted corrosion if moisture got under the protector, since the composition of the metal in the protector was different than the metal in the pipe body. When metals with different compositions come into contact, the difference in electrolytic potential accelerates corrosion.

Most protectors currently in use are either all plastic or plastic/metal composites. These types of protectors prevent dissimilar metals from coming in contact and resulting electrical potential problems.

However, such protectors cannot control expansion or contraction due to changes in ambient temperatures.

The difference in the thermal coefficient of expansion between plastic and steel is significant. Plastics commonly used in protectors, such as polyethylene, polypropylene, and polyurethane, can have a thermal coefficient of as much as 10 times that of steel. Even in composite protectors, the difference can be substantial. During a normal daily temperature cycle, a pipe in storage can be exposed to a temperature fluctuation of more than 75°F (45° C).

The result is a "pumping" action when the protector expands and contracts at a much greater rate than the steel pipe body. If moisture due to rainfall or condensation comes into contact with the protector/pipe interface without a positive seal (either by mechanical means or excess compound), the moisture will work its way under the protector and eventually cause corrosion, regardless of what compound has been applied.

At the same time, the compound or the protector must provide a positive seal to prevent moisture between the protector and the pipe surface, which can cause "crevice" corrosion. If materials that promote corrosion (water, contaminants, and other ions) become trapped between two surfaces in tight contact (crevice), the reaction products generated will not be able to dissipate, increasing the ion concentration (contaminants) in the electrolyte (water) and greatly accelerating the corrosion process.





ABOUT FRICTION FACTOR

THE RIGHT PREMIUM COMPOUND FOR YOUR APPLICATION

The thread compound friction factor helps determine the correct amount of makeup torque required for rotary-shouldered connections. The makeup torque calculations for rotary-shouldered connections in API 7G were based on lead-based thread compounds, which have a friction factor of 1.0. Many thread compounds manufactured currently are not lead-based and do not have friction factors equal to 1.0.

To determine the correct amount of makeup torque required for a connection, multiply the friction factor by the required makeup torque for connection specified in API 7G.

For example, the makeup torque for drill pipe with $5 \% \times 3 \%$ NC50 tool joints is 21,914 ft-lb. If the friction factor is 1.1, the required torque to makeup the connection is:

 $21,914 \times 1.1 = 24,105 \text{ ft-lb}.$

The same calculation applies when the friction factor is less than 1. In the above example, if the compound has a friction factor of .9, the required torque is:

 $21,914 \times .9 = 19,723 \text{ ft-lb}.$

The friction factor (torque factor) for BESTOLIFE products is available on the specification sheets.

You may also call your BESTOLIFE sales representative for information at 855-243-9164.





BESTOLIFE THREAD COMPOUND USAGE CHART

	<u> </u>				
Drill Collar & Tool Joint Size	Compound OZ/Pin	Joints* Pins/Gal			
4 ½"	2.75	51			
5"	3.00	46			
5 ½"	3.75	42			
6 5%"	4.25	34			
7"	5.50	30			
7 %"	7.25	23			
8 5%"	9.00	17			
9 5%"	9.50	14			
Tubing Size	Compound OZ/Pin	Joints* Pins/Gal			
2 3/8"	0.66	194			
2 1/8"	0.80	160			
3 ½"	0.88	128			
4"	1.12	114			
Casing Size	Compound OZ/Pin	Joints* Pins/Gal			
4 ½"	1.88	68			
5"	2.09	61			
5 ½"	2.30	55			
6 5/8"	2.76	46			
7"	2.93	44			
7 %"	3.19	40			
8 5/8"	3.61	35			
9 5/8"	4.03	32			
10 ¾"	4.50	28			
11 ¾"	4.92	26			
13 ¾"	5.60	23			
16"	6.70	19			
18 %"	7.79	16			
20"	8.37	15			

^{*} When applying compound to one LT&C pin or box, filling root to crest. For short thread, multiply by 0.25. If both pin and box are doped, multiply compound ounces by two or divide pins/gallon by two.





THREAD COMPOUND EQUIVALENCE CHART

Bestolife™	Jet-Lube®	OCR	SW	Baker/Forum	CHEMOLA	MISSION - WOOLEY	DNOW	Wilson	Торсо
'Bestolife 270 ®							DNOW 270		
60% Lead Base	Kol'r-King®		HI-PRO 60		Heavy DC	ThreadBoss 60	DNOW 60%	W960	All Star
PB Black									
Mr 'B ®						Mr. H	Mr. O		
Zn40	Z-40 TM	ZN40		Zee-40	ZN-40	40-Z			
Zn50	Z-50™	ZN50	HI-PRO 50 ZN	Zee-50	ZN-50	50-Z	ZN50	W650	Zincote
Zn60	Z-60 TM	ZN60		Zee-60	ZN-60	60-Z	ZN60	W660	
White Collar	White Lightning	222	HI-PRO 3000		EZE BREAK DC	Wooley White		TFE-DC	
Black Jack		212	HI-PRO 2000		EZE BREAK DP	Wooley Black		TFE-DP	
CSSB®	Jet Lube Extreme®								
CSSB® Plus									
Copr 99	JLS, Jet Lube-21®, LBX		HI-PRO 4000	No Lead Irish Copper	Rotary Gold, Copper Head			HE-80, Wilson Gold	
CBLF-HT	Kopr Kote®, Jet Lube-21®								
Cal Bronze ®							Cal Bronze		Cop-R-Lube
Cal Bronze ® Lead Free	Jet Lube-21®	221, 238		Copper Guard-4, Irish Copper					
Copper Joint							Copper Top	Copper Lube	
Copper Joint Lead Free		220			Premium Copper Compound		Copper Top Lead Free	Copper Lube Lead Free	
"4010" NM	NCS-30® ECF™, Seal-Guard™ ECF™								
3010 Ultra					378				
"3000" ®	Pow'r-Kote®								
GGT-RSC HT	Kov'r-Kote®, NCS- 30	236		Baker Metal Free					
"2000" ®								2001	
"2000" ® NM									
2010 NM Ultra	Cural								
API Modified	API		HI-PRO 1000		303 API Modified		API	Wilson API	API
Zn18									
остб		306			358		OCTG	Lead Free	NLC Modified; JWW
Metal Free	Run-N-Seal®, TF-15	318, 338, 171		Baker Modified Metal Free	Millenium		Metal Free	Wilson Metal Free, HE-88	Green Seal II, Eco-Seal
GGT	Cural	115							Eco-Seal
PTC	Enviro Safe								
PTC-ST									
Fiberseal	TF-15®			Baker "T" Seal	325				
BSC	Korr-Guard™								
Copr Rock									
C55 ®									
Supr Copr							Copr Lube		
Copr Plus									NL Collar
Copr Plus Pumpable									
Eco-Sil	Well-Guard®								
Moly G		153					Moly	Moly	
Bee Lock	Jet-Lok® II	Liqui-Lok		Baker Lok	T-Lok 900				



AT YOUR SERVICE

We are pleased to answer any questions or handle any concerns you may have.

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