

Dirghayu Wire Rope Dressing Greases

WRD UR - GP , WRD UR-HT, WRD UR – CV, WRD-OFO, WRD- Mine ,
WRD Marine - WRD Plus (I) & WRD Super (I).

Wire rope forms an important part of many machines & structures. It is comprised of continuous wire strands wound around a central core. There are many kinds of wire rope designed for different applications. Most of them are steel wires made into strands wound with each other. The core can be made of steel, rope or even plastics.

Wire Rope Lubrication –

Wire ropes are lubricated during production to protect them from mfg till it is used at site. They require field re-lubrication or **dressings lubricant** as per their field conditions & requirements of their function. They may require re lubrication over the life of wire rope.

Wire rope lubricants have four principal requirements -

1. Excellent Lubricity & Penetration up to Core –

To reduce friction between individual wire strands & core as these move over each other during operation. The life of wire rope & the power required to move the wire with weight depends on this friction. Hence, the wire rope lubricants should have excellent lubricity & penetration from outside surface to core, covering each strand properly. This will reduce the friction between strands & core during operations.

2. Corrosion Protection on the Exterior Surface in Sultry , Humid & Rusting prone atmosphere -

The exterior surface has to face sultry, humid atmosphere as well as heavy rains, high heat, heavy dust & high rate of movement for day in & out carrying heavy loads. All these conditions are very favorable for heavy rusting or corrosion, whether it is marine operation or ship, mining operation or open air construction. In case of factory operations, wire ropes may have to face acidic vapors at high temperature coming from process. Hence, wire rope grease should have excellent corrosion resistance & adhesion with exterior surface to withstand heavy rains & high Heat & Dust .

3. Environment Friendly Nature -

Due to global awareness of protecting water culture & environment, developed countries have made it mandatory to use Environment friendly Lubricants in their resp. waters. Europe, Japan, Korea, Australia etc. are having regulations for the same. USA has introduced similar regulations from Dec. 2013. Developing countries including India will follow the same shortly.

4. Superior Adhesion with wire rope -

While dressing grease on the wire rope at modern speed of wire rope of 250 mtrs / min. , as well as while operating in heavy rains having high impinging force, the grease should hold the wire rope & should not caused flipping or rain water impinging loss to open the wire rope without any protection .

Dirghayu Based WRD wire rope greases - As Natural first choice -

With Exclusive properties of Bio based lubricants, they become the first choice meeting all the above four requirements. These properties are –

- a) *Very High Lubricity compared to Petro /Synthetic lubricants* – This results in substantially reducing the friction between strands & core, increasing the life of the wire rope & reducing the energy consumed by the Drive. It can penetrate well reaching every strand & core.

- b) *Polar Nature* - Unlike Petro / Synthetic, Bio lubricants being polar, have adhesion with each wire strand, forming fine film around the same.
- c) *High Viscosity Index* – This provides almost uniform viscosity in all weather conditions. It does not change the viscosity or grade even in highest temp.
- d) *High Flash Point & Low evaporation rate* – Hence, it is most suitable near furnaces or High temp applications in industry.
- e) *Bio degradable & non toxic* – In case of marine applications, it is mandatory to be Environment friendly by law in all developed countries. Moreover, this takes care of human safety, ease of handling & safe disposal.

The search for such grease has ended in India with **Bio based Green 'Dirghayu' Wire Rope Greases** from M/s. **Intech Energy Systems Pvt. Ltd.** since April 2012

Applications –

We have developed six different types of WRD greases for different applications , They are -----

1. **WRD - UR – GP** - These wire ropes are used under roof & controlled environmental & duty conditions. Gantries & hoist in factories, lifts & elevators in residential or commercial buildings including offices, hotels, hospitals & malls. They are also used on railway stations & air ports for man & material transportation. They are normally used for light & medium duties.
2. **WRD - UR – HT** - These wire ropes are handling material in high temp. operations like ovens, foundries & Furness but under roof of the factory , like steel mills . They require high temp withstanding formulations.
3. **WRD - UR – CV** - These wire ropes are carrying material near chemical vapors in processes like pre treatment before surface coating, plating or in chemical factories. The basic formulation requires special protection from corrosion.
4. **WRD - OFO** - These wire ropes are used on construction sites for cranes , hoist , lifts or on individual moving cranes on roads or fields like JCB. They are also used by transporters & logistic systems. The formulations require protection from open air environment like rain, dust, sun heat etc. but not sultry conditions like marine. The formulation also requires good penetration considering the larger diam. of wire ropes for heavy shock & jerky loads.
5. **WRD - Mine** - These wire ropes have to carry heavy duty in humid & dusty atmosphere. Fire proof or high flash point properties are reqd. in the formulation. very long lengths & heavy loads are reqd. to be continuously transported by wire ropes.
6. **WRD – Marine - WRD Plus & WRD Super** - These wire ropes are working continuously in adverse atmospheric & loading conditions. RTG , QC cranes using wire diam. from 25 mm to 40 mm are used. They require stringent performance criteria's. for some of the duties double application of penetrating & coating can enhance the life of the wire rope almost to double. However, depending on the duty, the NLGI grade 1 /0 or 00 is preferred for specific duty cycles. Hence, we have introduced **WRD Plus & WRD Super** to meet these requirements.

The product information & TDS are given in following sheets – We are also providing other lubricants like Gear oil or Hyd. fluids being used as total system for specific applications



Specifications: WRD- UR - GP , WRD- UR –HT & CV , WRD – UR – OFO

Test	Test Method	Unit	WRD-UR-GP	WRD-UR-HT & CV	WRD-UR-OFO
Appearance	Visual		Semi-fluid	Soft	Soft
Base Oil			Chemically Modified Vegetable Oil	Chemically Modified Vegetable Oil	Chemically Modified Vegetable Oil
Thickener			Organic Clay	Organic Clay	Organic Clay
Color			Black	Black	Black
Base Oil Viscosity @ 40°C	ASTM D 445	Cst	200-220	200-220	180-200
Additive			MOS ₂	MOS ₂	MOS ₂
NLGI GRADE			00	0-1	0-1
Worked Penetration after 60 Strokes	ASTM D 217	mm	435	340	350
Worked Penetration after 10,000 Strokes	ASTM D 217	mm	440	350	360
Four Ball Weld Load	ASTM D 2596	Kg	320	330	360
Four Ball Scar Dia.	ASTM D 2266	mm	0.48	0.52	0.45
Copper Strip corrosion Test	ASTM D-4048		1a	1a	1a
Oil Separation Test	ASTM D 1742	%	2.8%	0.35%	4.5%
Oxidation Stability Test	ASTM D 942	Psi	18 psi loss (After 100 hr.)	7.13 psi Loss (After 100 hr.)	10 psi Loss (After 100 hr.)
Biodegradability	ASTM D 5864-11		60% within 28 days	60% within 28 days	60% within 28 days
Non toxic	OECD 203		96 hr passed	96 hr passed	96 hr passed



Specifications: WRD- Mining , WRD Super (I) , WRD – Plus (I)

Test	Test Method	Unit	WRD-Mining	WRD Super (I)	WRD Plus (I)
Appearance	Visual		Semi-fluid	Semi-fluid	Soft
Base Oil			Chemically Modified Vegetable Oil	Chemically Modified Vegetable Oil	Chemically Modified Vegetable Oil
Thickener			Organic Clay	Organic Clay	Organic Clay
Color			Black	Black	Black
Base Oil Viscosity @ 40°C	ASTM D 445	Cst	200-220	414-506	>1600
Additive			MOS ₂	MOS ₂	MOS ₂
NLGI GRADE			0-1	00	1
Worked Penetration after 60 Strokes	ASTM D 217	mm	340	420	325
Worked Penetration after 10,000 Strokes	ASTM D 217	mm	350	430	335
Four Ball Weld Load	ASTM D 2596	Kg	400	320	320
Four Ball Scar Dia.	ASTM D 2266	mm	0.52	0.53	0.5
Copper Strip corrosion Test	ASTM D-4048		1a	1a	1a
Rain Water Test			3.1	7.3	2.98
Flipping Test (500 m /min)			11.3	22.6	10.84
Oil Separation Test	ASTM D 1742	%	0.42	0.83	0.42
Oxidation Stability Test	ASTM D 942	Psi	18 psi (100 hr)	22 psi (100 hr)	18 psi (100 hr)
Biodegradability	ASTM D 5864-11		60% within 28 days	60% within 28 days	60% within 28 days
Non toxic	OECD 203		96 hr passed	96 hr passed	96 hr passed



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