



O.I.T.A.F.
Work-Committee No II
Characteristics and Inspection of Ropes



Why lubricate a steel wire rope is necessary?

Grenoble 24 April 2014

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Do you feel safe to use your engine without lubricant for long time?...



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.....and with your rope?



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Why lubricate a wire rope is necessary?

A steel wire rope needs to be lubricated:

- to prolong its useful service life
- reducing the rate of development of the numbers of broken wires
- increasing the corrosion protection
- reducing the coefficient of friction between the wires and the strands

How we can do this?

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With the manufacturing lubrication

The lubricant applied during the manufacturing process shall be suitable for the final use, compatible with the lining sheave's and rollers material as required from the actual standard (EN 12385-8) and with low impact for the environment



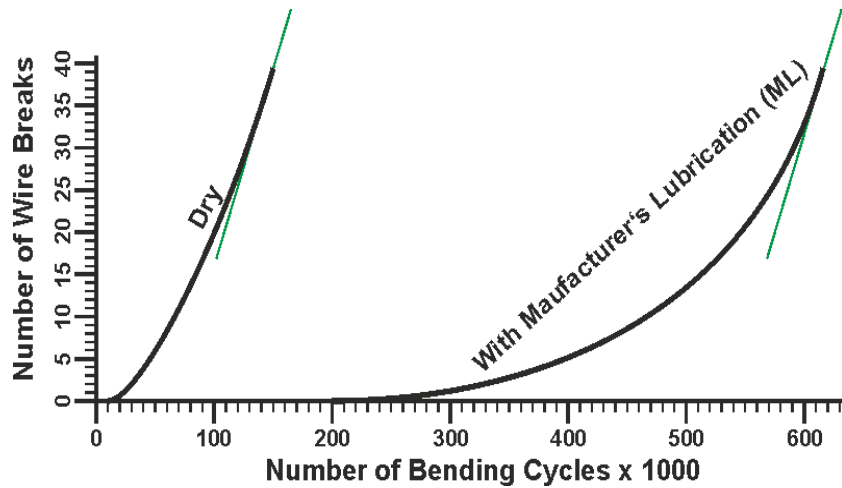
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lubricated rope = extended fatigue life time

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With the periodical re-lubrication

The lubricant applied during the periodical maintenance operations shall be compatible with the original lubricant and with the lining sheave's and rollers material also



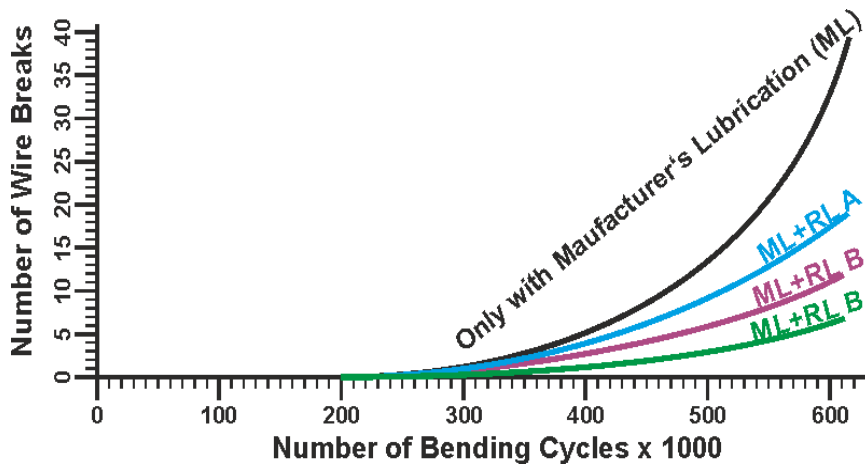
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Re-lubricated rope = extended fatigue life time



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Why re-lubricate a wire rope is necessary?

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Why re-lubricate a steel wire rope is necessary?

The presence of a lubricant acting as a **“third body”** between the two metallic surfaces in contact reduces the occurrence of fretting, therefore reducing the occurrence of wire breaks due to fatigue.

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Why re-lubricate a steel wire rope is necessary?

The original lubricant in specific working condition like: operational high speed and hours, environmental, high bending cycles range etc. cannot withstand and maintain its original characteristics for all the rope lifetime



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Why re-lubricate a steel wire rope is necessary?



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The perfect re-lubrication process

The rope must be:

CLEANED



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The perfect re-lubrication process

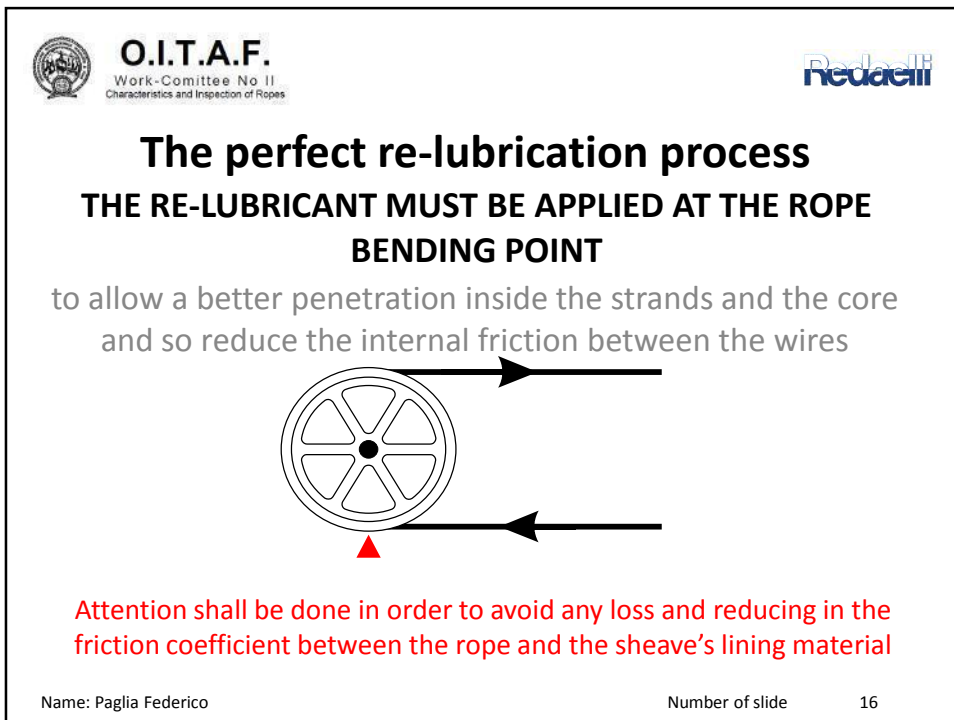
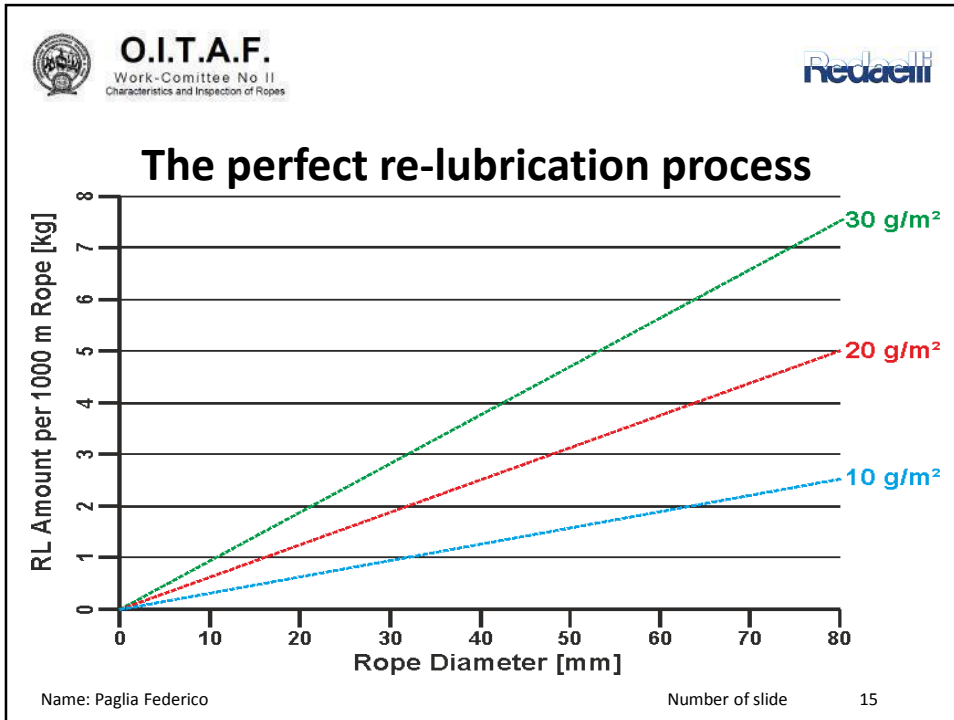
The rope must be:

DRIED

The new lubricant shall be applied on dry rope and dry environmental conditions to avoid any water and humidity trap that can result an internal corrosion

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The perfect re-lubrication process

FREQUENCY

the re-lubrication interval should be established taking into consideration the operation frequency (number of bending cycles), the environmental condition, the experience

In general this interval should not be longer than one year.

It is recommended that re-lubricating is maintained once the process has been started.

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The perfect re-lubrication process

IS THIS ALWAYS POSSIBLE
EASY TO DO
AND
COST EFFECTIVE INTERESTING?

re-lubricate a rope is always recommendable, but also the effective impact on the rope lifetime, safety and economical matters can be part of the evaluation

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The perfect re-lubrication process

Specific rope sections

Splice: tucks, tucks ends

End connections: sockets

Continuous bended or flexed sections

Damaged areas

All the above areas needs particular attention

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Lubrication and re-lubrication hazards

The lubricant and re-lubricant grease / oil must be chosen properly in relation to:

The rope type

Rope application

Installation type and service

Environmental condition

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Lubrication and re-lubrication hazards

The use of wrong lubricant or excessive applied quantity can result in:

Friction problems

Rollers - sheaves lining material damage and wear

Environmental problems

Periodical visual inspection problems

The application / use of a wrong lubricant or re-lubricant can result in lack of safety and reduce the rope lifetime

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Lubrication and re-lubrication hazards

Excess in quantity



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Lubrication and re-lubrication hazards

Excess in quantity



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Lubrication and re-lubrication hazards


Rollers and sheaves
lining damage




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No Lubrication and re-lubrication hazards



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Final Comments

- ✓ Manufacturing lubrication is important, but under certain condition cannot withstand for the entire rope in service lifetime
- ✓ the re-lubrication is an effective part of the periodical rope maintenance process and can ensure an increasing in the lifetime
- ✓ Both the manufacturing and the re-lubrication lubricant shall be selected taken in consideration the rope use, environmental condition etc.
- ✓ The manufacturing and re-lubrication lubricant must be compatible with them

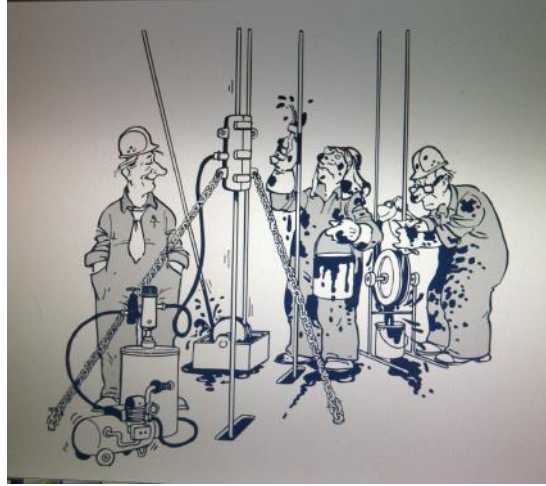
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Thank you



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