Fire Resistant Grease
A NEW WAY TO IMPROVE WORK SAFETY AND REDUCE FIRE HAZARD IN STEEL PLANTS.

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Tim Mattern
Global Grease Manager
Outline

» Purpose of Fire Resistant Grease
» Grease Selection Criteria
» Fire Tetrahedron
» Recommended usage areas
» Recent Examples
» Conclusion
Purpose of Fire-Resistant Grease

» Improve workplace safety
» Reduce the fire hazard
» Reduce the risk of fire
» Reduce the risk of equipment damage
» Reduce the risk of loss of production
Grease Selection Criteria

**Risk Selection**
- Safety concerns
- Fire hazard
- Equipment damage / downtime

**Viscosity Selection**
- The amount of load on the bearings
- Speed of bearings
- Temperature at bearing interface

**NLGI Grade Selection**
- Central dispensing system distance to dispensing valves
- Temperature of Plant – Summer or Winter
- Sealing properties demanded

**Thickener Selection**
- Operating conditions
- Customer’s equipment
- Current product in use
Fire Tetrahedron – How a Fire Starts

For a fire to start and evolve, it must have four elements present.
4 Ways to Put Out a Fire

I. Cool the burning material
II. Exclude oxygen
III. Remove the fuel
IV. Break the chemical reaction
Organic Materials

Every organic material can burn -
Lubricants are based on organic material

Chemistry
Type of chemistry, molecule size etc. impact flash points

EXAMPLES
Gasoline  -25°C
Diesel    +55°C
Lubricating oil  >+180°C
How does QUINTOPLEX™ avoid fire?

Removal of the Fuel
The grease has a very low vapor pressure

- Less fuel vapor
- High flash point
- Less heat
Recommended usage areas

Coke Oven
Blast Furnace
Melt Shop
Steel Making Plant (Caster)
Hot Rolling Mill (Furnace, roller table, etc.)
Recent examples

#1 Continuous Casting Machine – Ladle Turret Bearing
#2 Hot Rolling Mill - Walking Beam Furnace - Exit Roller Table
#3 Cold Rolling Mill - Pickle Line – Stretch Leveler (tension roller)
#4 Hot Press - Feeder
Example #1 – Ladle Turret Bearing

CLIENT: Steel Producer – China

PROBLEM:
» When cleaning the shroud on the casting platform, there was a fire risk from the flying sparks
» This was causing the accumulated used grease underneath the ladle turret to catch fire and endanger production safety

THE QUAKER SOLUTION: Switch to QUINTOPLEX™ LXS 1002-EP
» After 1 year of the product in use there were no more grease related fire issues
» This proved that fire-resistant grease could eliminate a fire hazard effectively
» Moreover, thanks to the excellent extreme pressure & anti-wear properties of QUINTOPLEX™, the tendency of excessive wear caused by the previous lubricants has been reduced
Example #1 – Ladle Turret Bearing
Example #2 – Furnace Exit Roller

CLIENT: Steel Producer – North America

PROBLEM:
» In the hot mill slag was falling off the 2,300°F (1260°C) steel bars coming out of the furnace causing the excess grease on the bearings to catch on fire

THE QUAKER SOLUTION:
Switch to QUINTOPLEX™ LXS 1002-EP

After more than 5 years on the FR grease following benefits have been achieved
» 90% reduction in fires
» Removed the continuous water supply
» Reduced corrosion on the roller bearings
CLIENT: Steel Producer - UK

PROBLEM:
» Repeated fires caused by welding sparks
» Grease in use calcium sulfonate soap, mineral oil based
» High grease consumption

THE QUAKER SOLUTION:
Switch to QUINTOPLEX™ LXS 3202-EP
» After 1 year of product in use there were no more grease related fire issues
» This proved that fire-resistant grease could eliminate a fire hazard effectively
» Moreover, thanks to the excellent extreme pressure & anti-wear properties of QUINTOPLEX™, the tendency of excessive wear caused by the previous lubricants has been reduced
CLIENT: Hot Forming - Spain

PROBLEM:
» Problems with occasional fires
» Loss lubrication, dirty equipment
» Grease in use lithium soap, mineral oil based

THE QUAKER SOLUTION:
Switch to QUINTOPLEX™ LXS 3202-EP
» After 2 year of product in use there were no more grease related fire issues
» Reduced consumption because of longer re-lubrication intervals
» Increased machine cleanliness and reduced maintenance cost
Fire Resistant Grease

» Reduces the risk of fire
» Supports worker safety in steel plants around the globe

Think about operations and areas where fire-resistant greases can help to improve on-site safety in YOUR plant.
Thank you for your attention.

Questions?