

PROJEKT UŠTEDE UZ MAZIVE MASTI NCH

KLIJENT:

YTONG

INDUSTRIJA: GRAĐEVINA

Turk Ytong Sanayi A.S. osnovan godine 1963. uz licencu Ytong International, postao je lider u modernizaciji turske građevinske industrije zahvaljujući svojoj tehnologiji i investicijama. Turski Ytong je izrastao u drugog najvećeg Ytong proizvođača na svijetu nakon Njemačke, s godišnjim kapacitetom proizvodnje od 1.260.000 m³.



PRIJE

PREOPTEREĆENI
LEŽAJEVI

NEDOSTATAK
MAZIVOG FILMA

POVEĆANO
TRENJE I
PREGRIJAVANJE

TOPLJENJE I
ISTISKIVANJE
MASTI

ZASTOJI U RADU ZBOG
SERVISA I PAD
PROIZVODNJE

VELIKA
POTROŠNJA
MAZIVE MASTI

SKREĆENI
INTERVALI
PODMAZIVANJA

VISOKI
OPERATIVNI
TROŠKOVI

PODRUČJE PRIMJENE:

Ležajevi Quartzite drobilice

PRIJE K NATE-a

60 kg / 3 tjedna

POSLIJE K NATE-a

0,8 kg / 3 tjedna

Količina potrošene masti

Promjena temperature ležaja

50-55 °C

35-40 °C

ZAUSTAVLJENO TOPLJENJE MASTI, 98 % SMANJENA POTROŠNJA MASTI

POSLIJE

PREOPTEREĆENI
LEŽAJEVI

OČUVANJE
MAZIVOG FILMA

SMANJENO
TRENJE I
SNIŽENE
TEMPERATURE

K NATE OSTAJE
NA
PRIMJENJENOM
MJESTU

SPRIJEČENI ZASTOJI
U RADU I PAD
PROIZVODNJE

SMANJENA
POTROŠNJA
MASTI

PRODUŽENI
INTERVALI
PODMAZIVANJA

NISKI
OPERATIVNI
TROŠKOVI

Zahvaljujemo tehničkim menadžerima i osoblju YTONG-a na podršci tijekom ovog projekta.

KLIJENT:



INDUSTRIJA: PROIZVODNJA BETONA

Nuh Beton A.Ş. je mladi i dinamični predstavnik industrijske tradicije kompanija Nuh Grupe od 1959. godine. Godine 1997. ušli su u 500 najvećih industrijskih proizvođača u Turskoj, da bi 2006. bili među 200 najvećih proizvođača. Nuh Beton A.Ş. je vlasnik 26 kompjuterski upravljanih i potpuno automatiziranih betonara na 19 kompletno opremljenih lokacija međusobno i centralno povezanih pomoću podatkovnih linija, u Istanbulu, Kocaeli, Yalovai, Bursi, Sakaryi, Bileciku i Düzceu.



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TROŠKOVI

PODRUČJA PRIMJENE:

PRIJE K NATE-a

POSLIJE K NATE-a

Preša za betonske elemente

Količina potrošene masti

18 kg / 6 dana

7,2 kg / 6 dana

Intervali
podmazivanja
ležaja

Betonara

2 puta / dan

1 put / 2 dana

Mikseri za beton

16-20 potisaka / 30 dana

4-5 potisaka / 30 dana

Pumpe za beton

16-20 potisaka / 30 dana

4-5 potisaka / 30 dana

75 % UŠTEDE NA MJESEČNIM TROŠKOVIMA MASTI

POSLIJE

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TRENJE I
SNIŽENE
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Zahvaljujemo tehničkim menadžerima i osoblju Nuh Beton na podršci tijekom ovog projekta.

PROJEKT UŠTEDE UZ MAZIVE MASTI NCH

KLIJENT:



INDUSTRIJA: PROIZVODNJA MRAMORA

TOR-MER Marble je osnovano godine 1970. uz Izmiru, Turska. Poduzeće uspješno posluje dugi niz godina u građevinskoj industriji i proizvodnji mramora.



PRIJE

PREOPTEREĆENI LEŽAJEVI

NEDOSTATAK MAZIVOG FILMA

POVEĆANO TRENJE I PREGRIJAVANJE

TOPLJENJE I ISTISKIVANJE MASTI

ZASTOJI U RADU ZBOG SERVISA I PAD PROIZVODNJE

VELIKA POTROŠNJA MAZIVE MASTI

SKRAĆENI INTERVALI PODMAZIVANJA

VISOKI OPERATIVNI TROŠKOVI

PODRUČJA PRIMJENE:

Gater za rezanje blokova – ležajevi na glavnom dijelu stroja

PRIJE K NATE-a

25 kg / 7 dana

POSLIJE K NATE-a

10 kg / mjesec

Promjene temperature ležaja

Smanjenje od 15-20 °C

90 % SMANJENA POTROŠNJA MASTI

POSLIJE

PREOPTEREĆENI LEŽAJEVI

OČUVANJE MAZIVOG FILMA

SMANJENO TRENJE I SNIŽENE TEMPERATURE

K NATE OSTAJE NA PRIMJENJENOM MJESTU

SPRIJEČENI ZASTOJI U RADU I PAD PROIZVODNJE

SMANJENA POTROŠNJA MASTI

PRODUŽENI INTERVALI PODMAZIVANJA

NISKI OPERATIVNI TROŠKOVI

Zahvaljujemo tehničkim menadžerima i osoblju TOR-MER Marble na podršci tijekom ovog projekta.

PROJEKT UŠTEDE UZ MAZIVE MASTI NCH

KLIJENT:  **NUR KIREC**
Son. Tic. ve Paz. Limited Sirketi

INDUSTRIJA: **POGON ZA DROBLJENJE VAPNENCA**

NUR LIME uspješno posluje više od 50 godina, a specijalizirani su za preradu vapnenca. Tvrtka ima veliko iskustvo u tehnologiji proizvodnje vapna te je orijentirana prema kupcima, uz ispunjenje visokih standarda kvalitete, ali ujedno i zahtjeva radnika što im je glavni cilj.



PRIJE

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VISOKI OPERATIVNI TROŠKOVI

PODRUČJA PRIMJENE:

- Drobilica
- Kuboidi
- Drobilica/diferencijal

PRIJE K NATE-a

POSLIJE K NATE-a

Količina potrošene masti

128 kg / mjesec

18 kg / mjesec

Intervali podmazivanja ležaja

2 puta / 7 dana

1 put / 30 dana

88 % SMANJENJE INTERVALA PODMAZIVANJA

POSLIJE

PREOPTEREĆENI LEŽAJEVI

OČUVANJE MAZIVOG SLOJA

SMANJENO TRENJE I SNIŽENE TEMPERATURE

K NATE OSTAJE NA PRIMJENJENOM MJESTU

SPRIJEČENI ZASTOJI U RADU I PAD PROIZVODNJE

SMANJENA POTROŠNJA MASTI

PRODUŽENI INTERVALI PODMAZIVANJA

NIŽI OPERATIVNI TROŠKOVI

Zahvaljujemo tehničkim menadžerima i osoblju Nur Lime na podršci tijekom ovog projekta.



Čelične konstrukcije - dizalice

Tvrtka: Peterson Beckner Industries, Houston TX

Kontakt osoba: Robert Henderson

"Koristimo 13 dizalica velikog kapaciteta izloženih vodi, prljavštini i svim vremenskim uvjetima. S Chevron masti prešli smo na Kernite K NATE i vidjeli da se odlično drži u odnosu na ostale masti koje smo isprobali. Preporučio bih je svima koji koriste tešku opremu."



Obrada voda - ležajevi & pumpe

Tvrtka: US Filter, Kenner LA

Kontakt osoba: Keith Courtney

"Otkad smo prešli na K NATE, smanjili smo zamjenu ležajeva, valjaka i pumpi za 60%. Mast ima zaista odličnu vodootpornost i podnosi vrlo teške radne uvjete."



Proizvodnja stakla – ležaji u uvjetima visokih temperatura

Tvrtka: Guardian Industries, Ligonier IN

Kontakt osoba: Roy Ulch

"Proizvodnja stakla podrazumijeva visoke temperature i prisutnost pijeska što utječe na ubrzano trošenje ležaja. Uspjeli smo produljiti period eksploatacije ležaja za otprilike 4 puta prelaskom na K NATE."



Građevina - rovokopači, buldožeri, kamioni i tegljači

Tvrtka: Chickasaw Construction, New Orleans LA

Kontakt osoba: Jeff Schmidt

"Nekad smo kupovali najjeftiniju mast koju smo mogli naći – mast je mast, zar ne? Krivo! K NATE jednostavno traje dulje od ostalih masti - točka."



Ljevaonica željeza - zamašnjaci & ležaji

Tvrtka: American Ordinance, Denmark IA

Kontakt osoba: Charles Ruschill

"Vrlo smo zadovoljni s K NATE masti – radi upravo ono što nam je i demonstrirano. Smanjili smo zamjenu dijelova, vrijeme ispada (kvarova) i potrošnju masti."

Studija slučaja #1001
Primjena: Proizvodnja peleta
08.07.2010, Švedska

BIOENERGI

i Böt-Kvarn AB

be Bioenergi i Böt-Kvarn AB
Pellet Produktion



BIOENERGI Böt-Kvarn AB ima dugogodišnje iskustvo u **šumarstvu i industriji biogoriva** sa pogonom smještenim u gradu Ruda u Švedskoj. Njihov glavni proizvod su peleti za ogrjev koje plasiraju na domaće tržište.

Ekstremni radni uvjeti dovode do učestalih kvarova ležaja i valjaka

Oprema: Salmatec
Ležajevi: SKF
Vijek tr. ležaja: 150 do 200h
Mast: TOTAL Ceran HV

Kao rezultat proizvodnog procesa i radne uvjete (okolina), ležajevi i valjci su izloženi:

- **Vrlo visokim opterećenjima**
- **Ekstremnim temperaturama**
- **Abrazivnim kontaminantima**
- **Vodi i vlazi**

Značajno onečišćenje piljevinom



K Nate smanjuje neg. utjecaje ekstr. uvjeta čime povećava vijek trajanja opreme i operativnu učinkovitost

- Značajno **povećanje vijeka trajanja ležaja** pomoću *adhezivno-kohezivnih polimera* koji "drže" mast na mjestu i kod visokih opterećenja (test 4 kuglice: 800kg)
- **Povećanje učinkovitosti podmazivanja** pri radnim temperaturama 120°C, unatoč značajnom prisustvu kontaminanata (vršna temp. do maks. +230°C)
- *Agensi protiv emulgiranja* bore se protiv posljedica **izloženosti vodi** koja je uzrok otkazivanja ležaja (**99.5%** masti ostaje na primjenjenom mjestu)

Dio stroja sa ležajevima i valjcima



Auto. sustav podmaz.

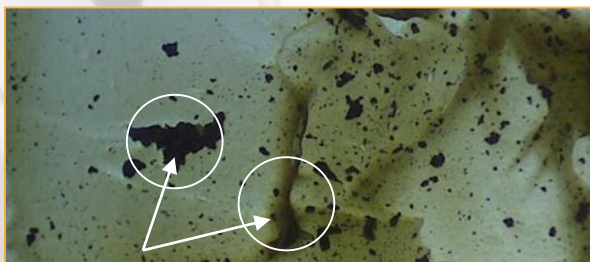


Izuzetna ušteda i smanjen broj kvarova

- Zbog ekstremnih radnih uvjeta i brojnih kontaminantima habanje opreme i dijelova je izuzetno veliko.
- Korištenjem **K Nate NLGI 2**, Bioenergi je:
 - Povećao vijek trajanja ležaja za **10 puta**
 - Smanjili broja kvarova sa **25 na 3**
 - Godišnje **uštedio 13,500 EUR**

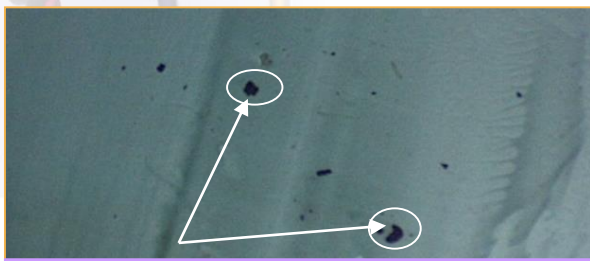
JD analiza ležaja (1:60)

Prije: TOTAL Ceran HV nakon 200 radnih sati



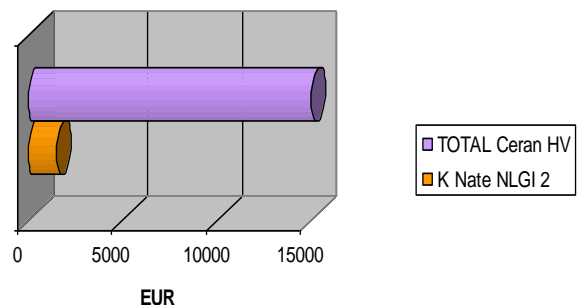
Pretjerana kontaminacija metal.

Poslije: K Nate NLGI 2 nakon 500 h



Niska kontaminacija metalom

Troškovi zamjene ležaja
TOTAL Ceran HV vs K NATE NLGI2



CATERPILLAR® preporuca kalcij sulfonat masti

Kao dodatak njihovom tradicionalnom Priručniku za vlasnike uz svaki kupljeni stroj, Caterpillar tiska i godišnji prilog "**Maintenance Machine Fluids Recommendations Manual**" ili "**Priručnik preporučenih fluida za održavanje**", dokument u kojem su sabrane sve njihove preporuke vezane uz podmazivanje strojeva i opreme.

Ovogodišnje izdanje Priručnika daje veliku podršku našim kalcij sulfonat mastima i općenito korištenju visokokvalitetnih ulja i maziva. Caterpillar postavlja **najzahtjevnije specifikacije za masti u industriji** stoga bi kupci trebali cijeniti njihove preporuke za masti ove tehnologije.

CATERPILLAR®

SEBU0250-15
January 2008



Caterpillar Machine Fluids Recommendations

18
Maintenance Section
Lubricant Specifications

Cat Advanced 3Moly Grease

Cat Advanced 3Moly Grease is an NLGI grade 2 grease. This grease is made with petroleum base oil and a lithium complex thickener. This grease also has 3% Molybdenum disulfide (MoS₂ or "Moly") in applications with low severity to high severity at moderate temperatures. In addition, the molybdenum that has a median particle size of 3 microns in order to meet the special requirements of some rolling element bearings. Cat Advanced 3Moly Grease is recommended for heavily loaded pin joints, and high tractors, backhoe loaders and skid steer loaders.

Cat Advanced 3Moly Grease meets the NLGI certification of "GC-LB" (This certification relates to automobiles, vans, and light trucks.)

Note: If the application calls for a multipurpose grease with molybdenum and Cat Advanced 3Moly Grease is not available, consult the data sheets for the greases. Use a substitute that meets or exceeds the performance characteristics of Cat Advanced 3Moly Grease.

Severe Applications

Caterpillar has greases which are made with a Calcium Sulfonate Complex thickener. This type of grease is necessary for more severe applications. These greases provide more load carrying (galling resistance), lower wear, longer working life, corrosion.

Hammer Grease

Note: Refer to the Operation and Maintenance Manual for a particular hammer for recommendations that relate to greases for Caterpillar Hammers.

Cat Ultra 5Moly Grease

Cat Ultra 5Moly Greases are available in NLGI grades 1 and 2. Cat Ultra 5Moly Greases are made with special blends of petroleum base oils and a Calcium Sulfonate Complex thickener. These greases also have 5% Molybdenum disulfide (MoS₂ or "Moly") fully formulated in order to protect all of the rolling elements in any Caterpillar machine articulating while work is being done in moderate conditions and with wet working conditions or dry conditions.

Cat Ultra 5Moly Greases are formulated with special blends of naphthenic petroleum base oils that have low pour points. This allows the Cat Ultra 5Moly Greases to pump at lower temperatures. The ability to pump Cat Ultra 5Moly Greases at lower temperatures in the machine will be adequately lubricated even if the ambient temperature drops unexpectedly. This is particularly important where the machine's critical lubrication points rely on an automatic lubrication system.

A significant challenge exists in order to get grease to pump into the joints at low temperatures. Once extremely high resistance to galling, wear, fretting, and corrosion in order to adequately protect highly loaded joints.

Even under severely loaded conditions, the grease should preferably have a very long working life. In order to make greases that meet these greater demands, a Calcium Sulfonate Complex thickener with a properly blended naphthenic oil and/or a synthetic base oil is required. This is the reason that Caterpillar uses these ingredients in Cat Ultra 5Moly Greases.

Cat Ultra 5Moly Greases also have 5% Moly, instead of the 3% to 3.5% that is found in most other greases. This additional Moly greatly improves the ability of the grease to protect parts from damage in applications with severe impact (blowings). In addition, the Moly in Cat Ultra 5Moly Grease is a special grade that has a median particle size of 3 microns in order to meet the special requirements of some rolling element bearings.

Cat Ultra 5Moly Greases are also made to be extra tacky. In some applications, the film of grease must adhere to the vertical surfaces. This certification relates to application in swing gears for excavators. Many conventional greases do not have enough of the tacky characteristic in order to allow the greases to stay in place. In addition, many of these greases do not have the performance in order to adequately protect the gear teeth in these applications.

Cat Ultra 5Moly Grease exceeds the NLGI certification of "GC-LB" (This certification relates to automobiles, vans, and light trucks.)

Note: If the application calls for Cat Ultra 5Moly Grease and Cat Ultra 5Moly Grease is not available, consult the data sheets for the greases. From these data sheets, use a substitute that meets the performance characteristics of Cat Ultra 5Moly Grease.

SEBU0250-15

SAFETY.CAT.COM


KERNITE®
LUBRICATION

Izdvojeno iz "Caterpillarovog dokumenta br. SEBU6250 CAT preporuke za fluide za podmazivanje":

CATERPILLAR®

18
Maintenance Section
Lubricant Specifications

SEBU6250-15

Cat Advanced 3Moly Grease

Cat Advanced 3Moly Grease is an NLGI grade 2 grease. This grease is made with petroleum base oil and a lithium complex thickener. This grease also has 3% Molybdenum disulfide (MoS₂ or "Moly"). Cat Advanced 3Moly Grease is formulated for use in applications with low severity to high severity at moderate temperatures. In addition, the molybdenum in Cat Advanced 3Moly Grease is a special grade that has a median particle size of 3 microns in order to meet the special requirements of some rolling element bearings. Cat Advanced 3Moly Grease is recommended for heavily loaded pin joints, and high impact applications in machines such as track-type tractors, backhoe loaders and skid steer loaders.

Cat Advanced 3Moly Grease meets the NLGI certification of "GC-LB". (This certification relates to extended service intervals in automotive chassis points and in wheel bearings with disc brakes in automobiles, vans, and light trucks.)

Note: If the application calls for a multipurpose grease with molybdenum and Cat Advanced 3Moly Grease is not available, consult the data sheets for the greases. Use a substitute that meets or exceeds the performance characteristics of Cat Advanced 3Moly Grease.

Severe Applications

Caterpillar has greases which are made with a Calcium Sulfonate Complex thickener. This type of grease is necessary for more severe applications. These greases provide more load carrying (galling resistance), lower wear, longer working life, exceptional water washout, and resistance to corrosion.

Hammer Grease

Note: Refer to the Operation and Maintenance Manual for a particular hammer for recommendations that relate to greases for Caterpillar Hammers.

Cat Ultra 5Moly Grease

Cat Ultra 5Moly Greases are available in NLGI grades 0, 1, and 2. Cat Ultra 5Moly Greases are made with special blends of petroleum base oils and a Calcium Sulfonate Complex thickener. These greases also have 5% Molybdenum disulfide (MoS₂ or "Moly") and added tackifier. Cat Ultra 5Moly Greases are specially formulated in order to protect all of the most heavily loaded joints in any Caterpillar machine against galling, wear, and corrosion. This protection is sustained while work is being done in moderate temperatures and with wet working conditions or dry working conditions.

Cat Ultra 5Moly Greases are formulated with special blends of naphthenic petroleum base oils that have low pour points. This allows the Cat Ultra 5Moly Greases to pump at lower temperatures. The ability to pump Cat Ultra 5Moly Greases at lower temperatures means added insurance that all of the grease joints in the machine will be adequately lubricated even if the ambient temperature drops unexpectedly. This is particularly important when the machine's critical lubrication points rely on an automatic lubrication system.

A significant challenge exists in order to get grease to pump into the joints at low temperatures. Once the grease gets to the joint, the grease must have extremely high resistance to galling, wear, fretting, water washout, and corrosion in order to adequately protect highly loaded joints.

Even under severely loaded conditions, the grease should preferably have a very long working life. In order to make greases that meet these greater demands, a Calcium Sulfonate Complex thickener with a properly blended naphthenic oil and/or a synthetic base oil is required. This is the reason that Caterpillar uses these ingredients in Cat Ultra 5Moly Greases.

Cat Ultra 5Moly Greases also have 5% Moly, instead of the 0% to 3% that is found in most other greases. This additional Moly greatly improves the ability of the grease to protect parts from damage in applications with severe impact (slamming). In addition, the Moly in Cat Ultra 5Moly Grease is a special grade that has a median particle size of 3 microns in order to meet the special requirements of some rolling element bearings.

Cat Ultra 5Moly Greases are also made to be extra tacky. In some applications, the film of grease must adhere to the vertical surfaces. An example of this application is swing gears for excavators. Many conventional greases do not have enough of the tacky characteristic in order to allow the grease to stay in place. In addition, many of these greases do not have the performance in order to adequately protect the gear teeth in these applications.

Cat Ultra 5Moly Grease exceeds the NLGI certification of "GC-LB". (This certification relates to extended service intervals in automotive chassis points and in wheel bearings with disc brakes in automobiles, vans, and light trucks.)

Note: If the application calls for Cat Ultra 5Moly Grease and Cat Ultra 5Moly Grease is not available, consult the data sheets for the grease. From these data sheets, use a substitute that meets the performance characteristics of Cat Ultra 5Moly Grease.

Za izrazito teške radne uvjete, Caterpillar preporuča masti napravljene s dodatkom kompleksa kalcij sulfonat zgušnjavala. Ova vrsta masti je neophodna za teške uvjete. Te masti omogućavaju viša opterećenja, smanjuju trošenje, daju dulji period eksploatacije te imaju odličnu otpornost na ispiranje vodom i koroziju.

Ukoliko je nužno imati jednu vrstu masti za podmazivanje svih strojeva i opreme na određenoj lokaciji, uvijek odaberite mast koja udovoljava ili premašuje zahtjeve najopterećenijeg stroja. Upamtite da ukoliko koristite proizvode koji jedva udovoljavaju minimalnim standardima pojedine primjene možete očekivati i minimalan period eksploatacije tj. životni vijek dijelova. Ako je jedini kriterij za odabir masti najniža cijena tada se radi o potpuno promašenoj računici. Umjesto toga, koristite mast koja daje najniži operativni trošak. Ovaj trošak treba temeljiti na analizi koja uključuje cijene rezervnih dijelova, troškove rada, vrijeme ispada te cijenu i potrebne količine masti.

Imajte na umu da su Kernite patentirane kalcij sulfonat mast daleko superiornije od bilo kojih drugih kalcij sulfonat masti na tržištu. Sve ostale kalcij sulfonat masti su proizvedene uz korištenje 85% do 90% ulja i samo 10% do 15% zgušnjavala i aditiva.

Naše patentirane kalcij sulfonat masti su proizvedene sa samo 60% ulja i 40% mazivog zgušnjavala i aditiva. Jednostavno usporedite rezultate testova i specifikacije i vidjet ćete razliku.

Etude de cas: #1405

Application: Tubular solutions, France

Produit: K Nate

Date: 14.05.2012

Vallourec



World leader in premium tubular solutions



VALLOUREC is the leader in the manufacturing of hot-rolled seamless tubes worldwide. It provides a wide range of tubular solutions for energy and industry sectors.

Extreme working conditions create a difficult environment both for equipment and lubricants

(heavy loads, extreme temperatures, water contamination) .

CURRENT SITUATION

Equipment: Whole manufacturing plant

Parts: Bearings (*Cooper*), glissières et allonges

Lubricant: Mobil XHP 221

Extreme working conditions cause:

- **Frequent lubrication** (*automatic system uses 65 tons of grease annually*)
- **Breakdowns and parts replacement**
 1. Labor of over €50,000/year
 2. Annual cost of parts (€260,000)
- **Unscheduled downtime**

Worn glissières (*lack of lubricant*)



K Nate is a multi-purpose Calcium Sulphonate grease for extreme pressures, high temperatures and contamination

- K Nate **remained in place** despite the **heavy loads** from the Cooper bearings. K NATE has a 4 ball weld load test of 800kg.
- K NATE provided an **effective lubrication** despite the extreme working environment (**high temperatures** from the oven). Constant temperatures of -28°C to +200°C and intermittent +230°C.
- Due to its **excellent water resistance** (Water washout of 0,5%), K Nate offered optimum lubrication against the water (contamination) used in the manufacturing process.

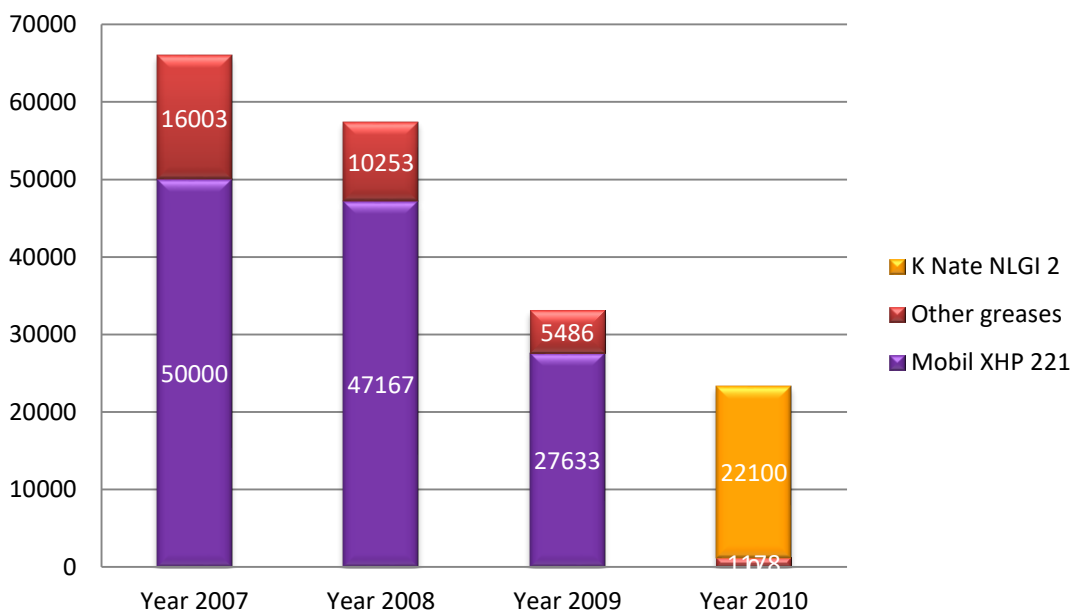
Allonge with Mobil XHP 221



K Nate increased greasing intervals while decreasing breakdowns and unscheduled downtimes.

- **Reduced grease consumption by 3** (from 66 tons to 22 tons)
- **Stopped breakdown** of Cooper bearings (Savings of €260,000 annually)
- **Reduced labor on breakdowns** (savings of 50,000 annually)

Annual grease consumption (kilos)



Allonge with K Nate

