

Cold Rolling Lubricants



petroyağ
LUBRICANTS

Aluminum

Aluminum

Cold Rolling Lubricants

Cold rolling and foil rolling of aluminum is a highly complex process and a multitude of factors and parameters are involved and the lubricating oil is just one of them so in case of deficiencies and/or inadequate rolling all factors should be taken into consideration. Optimum conditions for rolling result, in part, through a proper combination of lubricant chemistry, rolling speeds, product entry gauges, strip product thickness reduction ratios and the thermomechanical properties of the material being reduced in thickness.

The base oil is the major component of the system, accounting for more than 90% of the total lubricant volume. It functions as a solvent/carrier for the rolling additives (consisting of non-polar hydrocarbons), as a cooling medium and also provides a hydrodynamic lubricating film. Its viscosity has a significant effect on the quantity of lubricant entering the roll bite and the control of the rolling operation.

The base oil molecules form weak physical adsorption, however, the adsorption strength of this physically adsorbed film is small, and it will rupture under very low normal pressure, thus leading to the direct contact of the friction pair.

Therefore, pure base oil has low load bearing capacity and high coefficient of friction. This is the main reason why load bearing additives have been included in lubricants for cold rolling of aluminum. They are organic compounds which contain a functional polar group e.g. acids, alcohols, esters. The presence of these polar groups causes the molecules to be attracted and adsorbed onto the metal surfaces.

When a multi-component additive is dissolved in the base oil, there will be complicated interactions among the components and the base oil and it has been found by lab testing and by experience built from application in industrial scale that linear dodecane-tetradecane when combined with esters (usually different grades for cold rolling and foil rolling) the film strength of the lubricant is larger than when single components are used independently (synergistic action).

This means that the adsorbed layer formed on the metal surface is thicker when multi-component additives are used. The additive package can be completed with antioxidants, wetting agents and rarely with conductivity controlling compounds.

Overall cost of cold rolling oil is always a compromise between efficient lubrication, oil consumption and productivity. Oil is mainly consumed by evaporation loss (high temperatures, high reductions, high speeds), remaining quantities in the filters, loss at recirculation, physical adsorption and wetting of the rolled metal surfaces (oil consumed during annealing). Flow rates also have to be optimized for every mill according to production schedules and desired quality of surface.

PETRAL® SERIES

Narrow Boiling Range

Reduces oil consumption, saves energy.

High Flash Point

Minimizes fire risks, provides safer working environment.

UV Stability - Oxidation Resistance

Prolonged service life.

Excellent Lubricity

Reduces the forces required for rolling.

High Purity

Contributes to excellent surface finish before and after annealing.

Low Volatility

Increases production efficiency, provides safer working conditions.

Low Aromatic Hydrocarbon Content

Protects workers health.

Food Approval

Can be used for food applications without any risk.

Bio - Degradability

Does not harm the environment.

PETRAL® SERIES

Rolling Oils For Aluminum Sheet and Foil Production.

PETRAL® ADD/ADS/ADE

Lubricity Additives.

HYDROIL SERIES

Rolling Oil Compatible Stain-Free Fluids.

MORGOIL SERIES

Rolling Oil Compatible Bearing Lubricants.

CIPAR V80

Edge Cutting Oil.

MACKEREL GR

Fully Synthetic Biostable Grinding Fluid.

BONITO CR

Rolling Oil Compatible Stain-Free Gear Oils.



ROLLING OILS/ADDITIVES AND ANCILLARY LUBRICANTS

Petral S	Roughing mills	Hydroil Series	Rolling oil compatible stain-free hydraulic fluids
Petral F	Foil finishing mills	Morgoil Series	Rolling oil compatible bearing lubricants
Petral C	Foil finishing mills	Bonito CR	Rolling oil compatible stain-free enclosed gear oils
Petral ADS	Additive for breakdown mills	Mackerel GR	Fully synthetic biostable grinding fluid
Petral ADE	Additive for finishing mills	Cipar V 80	Edge Cutting Oil
Petral ADD	Additive for finishing mills	Petrocut AL 5000	Slab/billet cutting oil

The Petroyağ way



LEADERSHIP IN CONDUCTING BUSINESS

CREDIBILITY: Corporate integrity and individual self-respect leads to more constructive relationships with customers, suppliers, employees and the community.

TEAM WORKING: Commitment to a purpose and its implementation by inspiring teams toward achieving common objectives.

QUALITY: Customer satisfaction depends on right products at the right place at the right time. Once enough is not enough.

SIMPLICITY: From reduced bureaucracy to better product design and lower cost. Brevity and clarity. Less is better.

FLEXIBILITY: Fast decision making. Few management levels.

COMMUNICATION: Knowing where we are, our efforts and our business stand. Sharing of realistic, accurate and relevant information with individuals and team workers.

OUR WAY- OUR VISION

BUSINESS CONDUCT: Self-confidence and capability to act quickly and with responsibility.

CREATIVITY: Innovation and customer satisfaction.

MARKET KNOWLEDGE: We stand out favorably amongst the competition because business will not just come to us.

REWARD: Recognition attracts and motivates team workers to accomplish our objectives.

SAFETY: Establish appropriate standards for the safe operation of our plant and the protection of our people.

LEAN: Use people more effectively to assure business fitness and survival.

PEOPLE WHO CARE

Whatever industry you are in, Petroyağ AŞ has someone who will understand your business, recognize your problems and be able to offer solutions. We are constantly reviewing how to serve you better with a faster, more efficient service providing experience and support by our engineers and specialists.



Petroyağ ve Kimyasalları San. ve Tic. A.Ş.

GOSB Tembelova Mevkii Gençlik Cad. No : 3014 Gebze, Kocaeli PK: 41400

Tel: +90 262 677 17 00, Fax: +90 262 677 17 01

www.petroyag.com