

A photograph of an industrial machine, possibly a CNC lathe, with a large metal cylindrical component being machined. A blue flexible hose is connected to the machine. A spray of liquid is being directed at the workpiece, creating a misty atmosphere. The background is a grid pattern.

PRODUCT INFORMATION GUIDE

A close-up photograph of numerous water droplets of various sizes scattered across a light blue background. The droplets are in focus, showing their spherical shape and reflections.

CHEMICAL SOLUTIONS FOR INDUSTRY

NCOC has been serving the specialty chemical requirements of the metalworking industry since 1962.

We take pride in our ability to develop, manufacture and sell superior quality chemical products and services which optimize our customers' metalworking processes and improve end product appearance and performance.



All NCOC products are developed and tested in our own laboratory facilities. Our full line of metalworking products include process and maintenance cleaners, machining oils, drawing, stamping and forging compounds, aluminum die casting lubricants, coolants, rust preventives and conversion coatings. Many of these products meet common metalworking industry standards while others have been customized to suit particular product, process or environmental concerns. NCOC's experienced technical staff can also provide Fluid Management Programs tailored to specific operational requirements.



Over the years, NCOC has established a reputation in the industry for quality and service. A few elements of our continuous improvement efforts include:

-- State of the art computer managed blending operations for efficient batch processing of customer orders. In addition, NCOC is able to package products in several container types and sizes and provide customized labeling. These factors are a few of the reasons why meeting customer delivery, packaging and labeling requirements has become NCOC's standard, not our goal.

--NCOC employs rigorous manufacturing and laboratory testing practices that include the use of statistical process control. These methods ensure that NCOC products are manufactured to meet our high design quality standards and are consistent from batch to batch.

--NCOC's experienced sales people utilize a sales service approach with all our customers. Initial on-site customer consultations allow us to listen to customer concerns and offer the proper product. Second, on-going service allows our sales people to ensure that the customer receives the maximum product performance as well as helping meet future process requirements.



This combination of an experienced and technically competent staff coupled with our commitment to continuous improvement has enabled NCOC to enduring customer relationships. These relationships keep NCOC abreast of customer, product and industry trends.



NCOC's headquarters, research laboratories, sales and service is located in Oak Park, Michigan USA with additional manufacturing, sales and service in Aguascalientes Mexico, Dusseldorf Germany, Punjab India and Shanghai China.

**FORD Q1
IATF 16949
ISO 14001**

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The above product guidelines are for reference purposes only.
More detailed information with technical, operating and control procedures,
including health, safety and environmental guidelines,
is available upon request...

CONVERSION COATINGS AND RUST STRIPPERS

Conversion Coating Products Summary

Product	Product Type	Metals to be Treated	Method of Application	Temperature	Operating Concentration	Performance Features
8001	Iron Phosphate	Ferrous	Spray	110-140°F 43 - 60°C	1-5%	Cleaner/phosphate combination Economical alternative
8030	Iron Phosphate	Ferrous and Non-Ferrous*	Spray or Soak	110-160°F 43 - 70°C	0.25-0.75%	Highly concentrated product Effective non-ferrous surface conditioner
8032	Acid Rinse	Ferrous	Spray or Soak	140-160°F 60 - 70°C	0.5-1%	Non-chromated improved salt spray resistance
8050	Iron Phosphate	Ferrous and Non-Ferrous	Spray or Soak	110-160°F 43 - 70°C	0.25-0.75%	Maximum concentration for optimum operating economy Effective non-ferrous surface conditioner
8133	Iron Phosphate and cleaner	Ferrous	Spray or Soak	110-160°F 43 - 70°C	2-6%	Self passivating with detergent additive

Rust Stripper Products Summary

9003	Acid Rust Stripper	Ferrous and Non-Ferrous*	Soak	Ambient to To 180°F (82°C)	10-30%	Removes both red and white rust
9004	Acid Rust Stripper	Ferrous and Non-Ferrous*	Spray or Soak	110-160°F 43 - 70°C	10-30%	Removes both red and white rust
9009	Neutral Rust Stripper	Ferrous and Non-Ferrous*	Spray or Soak	Ambient to To 180°F	10-30%	Removes both red and white rust

* Non-ferrous metals do not include magnesium and other highly active metals.

NOTE: These products may be used following an alkaline pre-cleaning stage. They can also be used in conjunction with NCOC Surf-Aid detergent additives to clean and phosphate in a single stage. Consult your NCOC representative for Surf-Aid selection recommendations.

CUTTING AND GRINDING OILS

Cutting and Grinding Oils Products Summary

Product	Product Type	Type of Metal	Machining Applications	Operating Concentration	Performance Additives	Performance Features
ROYAL 13	Blended Oil	Ferrous	Broaching/ Heavy Duty Machining	As Received	Non-Chlorinated Sulfur and Lubrication Additives	Broaching High-speed cut off and sawing operations
ROYAL 20 (Minimum Quantity Lube)	Blended Oil	Ferrous and Non-Ferrous*	Tube Cutting and General Machining	As Received	Non-Chlorinated Sulfur and Lubrication Additives	High-speed cut off and sawing operations
ROYAL 25	Vegetable Oil Based	Ferrous and Non-Ferrous*	Heavy Duty	As Received	Non-Chlorinated Lubrication Additives	Good Tool Life Good Part Finish
ROYAL 40 (Minimum Quantity Lube)	Blended Oil	Ferrous and Non-Ferrous*	Tube Cutting and General Machining	As Received	Non-Chlorinated Sulfur and Lubrication Additives	Heavy Duty High-speed cut off and sawing operations
ROYAL 53	Sulfur Additive	Ferrous	Cutting/Grinding Oil Additive	As Required	Used to increase EP characteristics	Concentrated sulfur additive
ROYAL 54	Chlorine Additive	Ferrous	Cutting/Grinding Oil Additive	As Required	Used to increase EP characteristics	Concentrated chlorine additive
ROYAL 62 (Minimum Quantity Lube)	Blended Oil	Ferrous and Non-Ferrous*	Heavy Duty	As Received	Non-Chlorinated Lubrication Additives	Heavy Duty High-speed cut off and sawing operations
ROYAL 66R	Blended Oil	Ferrous	Gear Cutting Hobbing	As Received	Sulfur, Non-Chlorinated Lubrication Additives	Full Range from Light to Heavy Duty machining operations
ROYAL 74	Blended Oil	Ferrous	Heavy Duty Machining/ Broaching	As Received	EP Additives Lubrication Additives	Heavy Duty machining oil for tough alloys
ROYAL 4700	Mineral Oil	Ferrous and Non-Ferrous*	Honing & Light Grinding	As Received	Fatty Oil and Phosphorus No Sulfur or Chlorine	Good tool life Good part finish Good metal wetting

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DIE CASTING / FORGING LUBRICANTS & COATINGS

Die Casting Products Summary

Product	Product Type	Metals to be Treated	Method of Application	Temperature	Operating Concentration	Performance Features
ECO-FORM 7203	Die Releasing Agent	Aluminum Magnesium	Spray	Ambient	1:250 or 1:66	Die Casting- Withstands wide range of operating temperature
ECO-FORM 7212	Powder System	Ferrous and Non Ferrous*	Brushing	Per Instructions	As Received	Ladle Forging- Prevent aluminum adhesive - Increase tool life - Zink & Mineral free
ECO-FORM 7227	Die Casting Concentrate	Aluminum Magnesium	Spray	Per Instructions	1:70, 1:200	High Pressure Die Casting Lubricant - No buildup around tool - High micro-organism resistance
ECO-FORM 7229	Vegetable Ester Oil	Ferrous and Non Ferrous*	Spray or Manual Swab	Ambient	As Received	Plunger Lubricant - Graphite Free - Biodegradable - Excellent Thermal Stability - High flash point

Forging Products Summary

ECO-FORM 839	Water-Based Graphite Emulsion	Ferrous and Non-Ferrous*	Spray or Brushing	Warm or Hot Forging	1:2, 1:3, 1:5, 1:10	Forging Lubricant - Pre-coating and die Lubricant - Uniform wetting of hot dies - No build-up
ECO-FORM 841	Oil-Based Graphite	Ferrous and Non Ferrous*	Spray or Brushing	Warm or Hot Forging	As Received	Forging Lubricant - Easily Removable with Alkaline Cleaner - Excellent Lubricity - High flash point - Contains Anti-wear additives
ECO-FORM 844	Water-Based Graphite Emulsion	Ferrous and Non-Ferrous*	Spray	Warm or Hot Forging	1:2, 1:3, 1:5,	Forging Lubricant - Excellent Lubricity - Uniform wetting of hot dies - No build-up
ECO-FORM 7204	Graphite Oil Emulsion	Ferrous and Non Ferrous*	Spray or Brushing	Ambient	1:1, 1:20	Hot Forging Lubricant - Steel Extrusion - Aluminum Forging, Extrusion - Brass Forging
ECO-FORM 7218	Vegetable and Mineral Oil Based Graphite Emulsion	Ferrous and Non Ferrous*	Spray or Brushing	Warm or Hot Forging	As Received	Hot Forging Lubricant - Easy to spray - Very High Flash Point - Anti-wear additives
ECO-FORM 7244	Heavy Duty Oil-Based Graphite	Ferrous and Non Ferrous*	Spray	Per Instructions	As Received	Heavy Duty Forging Lubricant - Smokeless - Extends die life - Excellent Lubricity

* Non-ferrous metals do not include magnesium and other highly active metals.

MACHINING FLUIDS

Soluble & Semi-Synthetic Machining Fluid Products Summary

Product	Product Type	Type of Metal	Machining	Operating	Performance	Performance
INTRICUT 194	Soluble Oil	Ferrous and Non-Ferrous*	Medium Duty Machining	5-10% Concentration	Lubrication Additives	EP Additives for added performance
INTRICUT 211	Soluble Oil	Ferrous and Non-Ferrous*	General Purpose Machining Fluid and Rust Inhibitor	5-10% Concentration	Emulsion Cleaner R.P. Additive	Good lubricity and corrosion inhibition
INTRICUT 215	Soluble Oil	Ferrous and Non-Ferrous*	Medium to Heavy Duty Machining	3-10% Concentration	EP Additives	High performance Micro emulsion Low foaming pH stable
INTRICUT 247	Semi-synthetic	Ferrous and Non-Ferrous*	Medium Duty	5-10% Concentration	Chlorine Free Lubrication Additives	Vegetable oil based product
INTRICUT 265	Semi-synthetic	Ferrous and Non-Ferrous*	General Purpose or Medium Duty Machining	3-10% Concentration	Lubrication Additives	Good lubricity Aluminum machining Bio and pH stable
INTRICUT 273	Semi-synthetic	Ferrous and Non-Ferrous*	Medium Duty	5-10% Concentration	Chlorine Free Lubrication Additives	Good lubricity and corrosion inhibition
INTRICUT 284	Semi-synthetic	Ferrous and Non-Ferrous*	Medium to Heavy Duty Machining	3-10% Concentration	Chlorine Free Lubrication Additives	Low foam Bio-stable
INTRICUT 288	Semi-synthetic	Ferrous and Non-Ferrous*	Medium to Heavy Duty Machining	3-10% Concentration	EP Additives Lubrication Additives	Low foam Bio-stable
INTRICUT 289	Soluble Oil	Ferrous and Non-Ferrous*	Medium to Heavy Duty Machining	5-10% Concentration	Chlorine Free Lubrication Additives	Good lubricity and corrosion inhibition

* Non-ferrous metals do not include magnesium and other highly active metals. Check compatibility prior to use.

MACHINING FLUIDS

Synthetic Machining Fluid Products Summary

Product	Product Type	Type of Metal	Machining Applications	Operating Concentration	Performance Additives	Performance Features
ECO.KOR® 454	Synthetic	Ferrous and Non-Ferrous*	Medium Duty	5-10% Concentration	Chlorine Free with Lubrication Additives	Excellent Bio Stability and Corrosion Inhibition
ECO.KOR® 455	Synthetic	Ferrous and Non-Ferrous*	Heavy Duty	5-10% Concentration	Chlorine Free with Lubrication Additives	Excellent Bio Stability and Corrosion Inhibition
ECO.KOR® 456	Oil Absorbing Synthetic	Ferrous and Non-Ferrous*	Light to Medium Duty	5-10% Concentration	Boundary Lube Cleanliness Additives	Good Bio Stability Takes in 1-2% Oil Works with Older Equipment
ECO.KOR® 462	Synthetic	Ferrous and Non-Ferrous*	Light to Heavy Duty	5-15% Concentration	Boundary Lube Cleanliness Additives	Excellent Rust Protection Bio-stable
ECO.KOR® 476	Synthetic	Ferrous Non-Ferrous*	Light to Medium duty	5-10% Concentration	Chlorine Free	Good Bio Stability Good Rust Protection Low Foaming
ECO.KOR® 477	Oil Rejecting Synthetic	Tungsten Carbide	Light to Medium Duty	3-8% Concentration	Prevents Cobalt Leaching Performance Additives	Low Foaming Good Bio Stability
ECO.KOR® 488	Synthetic	Ferrous and Non-Ferrous*	Heavy Duty	5-10% Concentration	Chlorine Free with Lubrication Additives	Excellent Bio Stability and Corrosion Inhibition
VG 550	Synthetic	Ferrous and Non-Ferrous*	Light Duty	5-10% Concentration	Grinding Fluid and Rust Inhibitor	Low Foaming Oil Rejecting
VG 558	Synthetic	Ferrous and Non-Ferrous*	Light Duty	5-10% Concentration	Chlorine Free with Lubrication Additives	Excellent Bio Stability and Corrosion Inhibition

* Non-ferrous metals do not include magnesium and other highly active metals. Check compatibility prior to use.

METALFORMING FLUIDS & POLYMERS

Metalforming Fluid Products Summary

Product	Product Type	Type of Metal	Machining Applications	Operating Concentration	Performance Features	Comments
DURADRAW 800	Soluble Oil	Ferrous only	Heavy Duty	As is or up to 10:1	Excellent lubricity	Contains EP Additives and Lube additives
DURADRAW 801	Soluble Oil	Ferrous and Non-Ferrous*	Heavy Duty	As is or up to 10:1	Excellent lubricity Good RP	Chlorine and sulfur free
DURADRAW 806	Paste	Ferrous and Non-Ferrous*	Heavy Duty	As received	Excellent lubricity For tube bending and forming	Chlorine and sulfur free
DURADRAW 829	Synthetic	Ferrous and Non-Ferrous*	Medium Duty	As is or up to 10:1	Water soluble Good lubricity	Contains EP Additives
DURADRAW 833	Synthetic	Ferrous and Non-Ferrous*	Medium to Heavy duty	As is or up to 10:1	Water soluble Short term RP	Good general purpose forming fluid Chlorine & sulfur free
DURADRAW 845P	Synthetic	Ferrous and Non-Ferrous*	Light Duty	As is or up to 10:1	Good lubricity	Chlorine & sulfur free EP and lubricity Additives
DURADRAW 848LV	Soluble Oil	Ferrous and Non-Ferrous*	Medium to Heavy Duty	As is or up to 10:1	EP Additives	Contains EP Additives for various drawing Applications
DURADRAW 884	Soluble Oil	Ferrous only	Medium to Heavy duty	As is or up to 5:1	EP Additives	Excellent lubricity
DURADRAW 890	Synthetic	Ferrous only	Medium to Heavy duty	As is or up to 10:1	Excellent boundary Lubrication	Chlorine & sulfur free Lubricity additives
DURADRAW 901	Oil Base	Ferrous and Non-Ferrous*	Medium to Heavy duty	As received	EP Additives	Excellent drawing compound and rust inhibitor package
POLY-LUBE 6000	Polymer	Ferrous and Non-Ferrous*	Light to Heavy Duty	7-10%	Water soluble	Wire drawing, cold-heading & forming operations

* Non-ferrous metals do not include magnesium and other highly active metals. Special care must also be made with aluminum and galvanized steel parts to wash and dry them immediately after the metalforming operation to prevent the possibility of staining.

PROCESS CLEANERS

Process Cleaner Products Summary

Product	Type of Metal	Operating Temperature	Concentration	Soil Conditions	Method of Application	Rust Inhibiting Properties**	Operating pH	Special Features
ALKALINE CLEANERS								
NC-1109	Ferrous and Non-ferrous*	Ambient to 150°F	2-5% Spray 3-10% Soak	Moderate to Heavy	Spray or Soak	Good	11-11.5	Non-spotting
NC-1223	Ferrous and Non-ferrous*	Ambient to 140°F	1-5% Spray	Light to Moderate	Spray only	Very Good	9-9.5	Non Foaming Oil Rejecting Low Phosphate User Friendly
NC-1238	Ferrous	Ambient to 115°F	3-5% Spray 5-15% Soak	Heavy	Spray or Soak	Good	9-10	Non-silicated Non-phosphated
NC-1305	Ferrous and Non-Ferrous*	Ambient to 140°F	2-5% Spray 3-10% Soak	Light to Moderate	Spray or Soak	Good	9.5-10.5	Non-silicated Non-spotting Low pH
NC-1312	Ferrous and Non-Ferrous*	Ambient to 140°F	1-5% Spray 2-10% Soak	Moderate to Heavy	Spray or Soak	Very Good	9.5-10.5	Non-silicated Non-spotting Low pH
NC-1314	Ferrous and Non-Ferrous*	Ambient to 140°F	1-4% Spray 3-8% Soak	Light to Moderate	Spray or Soak	Very Good	9-10	Non-silicated Non-spotting
NC-1320	Ferrous and Non-Ferrous*	Ambient to 125°F	3-5% Spray 5-15% Soak	Light to Moderate	Spray or Soak	Very Good	10-11	Non-silicated Mild pH
NC-1345	Ferrous and Non-Ferrous*	Ambient to 150°F	1-5% Spray 2-8% Soak	Light to Moderate	Spray or Soak	Good	11-11.5	Oil Rejecting Very Low Foaming
NC-1379	Ferrous	Ambient to 140°F	1-5% Spray	Light to Moderate	Spray or Soak	Good	9-10	Preheat Treatment Cleaning Alkaline/Solvent
HEAVY DUTY ALKALINE CLEANERS								
NC-1260	Ferrous	Ambient to 180°F	1-4% Spray 5-10% Soak	All Soils	Spray or Soak	Good	12+	Excellent Bath Life Removes Sterate Soap and Zinc Phosphates Superior Wetting
NC-1365	Ferrous	Ambient to 180°F	1-5% Spray 2-8% Soak	Moderate to Heavy	Spray or Soak	Good	12+	Excellent Bath Life Removes Sterate Soap and Zinc Phosphates Superior Wetting
NC-1385	Ferrous Only	Ambient to 180°F	1-4% Spray 3-8% Soak	Moderate to Ext. Heavy	Spray or Soak	Excellent	12+	Soil Suspender Non-Phosphated

*Non-ferrous metals do not include magnesium and other highly active metals. Prior to implementation, all non-ferrous alloy cleaners should be tested to insure that no staining or oxidation occurs

** Cleaners having rust inhibiting properties retard rust, but are not classified as rust preventives. All parts must be dry.

NOTE: NCOC also offers a complete line of maintenance cleaning products. Consult your NCOC representative.

RUST PREVENTIVES

Rust Preventive Products Summary

Product	Product Type	Metal to be Protected	Relative Rust Protection	Type of Film	Method of Application	Concentration	Removal/Parts Cleaning	Special Features	Other Considerations
WATER BASE RUST PREVENTIVES									
ECO-KOR® 430	Synthetic	Ferrous and Non-Ferrous*	Short to Medium Term	Dry Film	Spray or Dip	5-10%	None Required	Non-Staining	Parts must be dry before packaging
ECO-KOR® 450	Synthetic	Ferrous and Non-Ferrous*	Short to Medium Term	Dry Film	Spray or Dip	5-10%	None Required	Non-staining	Parts must be dry before packaging
OIL AND SOLVENT BASE RUST PREVENTIVES									
UNICOAT 613D	Solvent Base	Ferrous and Non-Ferrous*	Medium Term	Light Film	Spray or Dip	As Received	Alkaline Cleaner	Water Displacing Non-staining	Light self-healing film Safe for black-oxide
UNICOAT 617G	Solvent Base	Ferrous and Non-Ferrous*	Medium Term	Light Film	Spray or Dip	As Received	Alkaline Cleaner	Water Displacing	Light to moderate film left on parts
UNICOAT 619	Oil Base	Ferrous and Non-Ferrous*	Long Term	Soft Oily	Spray Dip, Brush or Roll	As Received	Alkaline Cleaner	Fingerprint neutralizing Non-staining	Moderate to heavy film left on parts
UNICOAT 623	Solvent Base	Ferrous and Non-Ferrous*	Medium Term	Soft Waxy	Spray or Dip	As Received	Alkaline Cleaner	Water Displacing	Light film left on parts
UNICOAT 627	Oil Base	Ferrous and Non-Ferrous*	Medium Term	Oily	Spray or Dip	As Received	Alkaline Cleaner	Fingerprint neutralizing Water displacing Non-staining	Light to moderate film left on parts
UNICOAT 627J	Oil and Solvent Base 50/50	Ferrous and Non-Ferrous*	Medium Term	Light Oil	Spray or Dip	As Received	Alkaline Cleaner	Fingerprint neutralizing Water displacing Non-staining	Light film left on parts
UNICOAT 637	Solvent Base	Ferrous and Non-Ferrous*	Medium to Long Term	Soft Waxy	Spray or Dip	As Received	Alkaline Cleaner	Water Displacing	Light self-healing film
UNICOAT 685	Solvent Base	Ferrous and Non-Ferrous* (incl. galv.)	Medium Term	Light Oil	Spray or Dip	As Received	Alkaline Cleaner	Fingerprint neutralizing Water displacing Non-staining	Light film left on parts Designed for galvanized metal
UNICOAT 703	Solvent Base	Ferrous and Non-Ferrous*	Medium Term	Light Film	Spray or Dip	As Received	Alkaline Cleaner	Water Displacing	Fingerprint Neutralizing
UNICOAT 704	Oil Base	Ferrous and Non-Ferrous*	Medium to Long Term	Soft Oily Film	Spray or Dip	As Received	Alkaline Cleaner	Water Displacing	Fingerprint Neutralizing

*Non-ferrous metals do not include magnesium and other highly active metals.

NOTE: Length of corrosion protection will vary depending upon actual operating and storage conditions.

This is especially true of the water based products since they are the most susceptible to the effects of condensation.



ALUMINUM DIE CASTING

- Die Lubricants
- Ladle Coatings
- Plunger Lubricants

BLENDED OILS

- Honing
- Hobbing
- Broaching
- Grinding
- Vegetable Oil Based Cutting Products

CLEANERS Process/Maintenance

- Acid
- Alkaline
- Solvents
- Emulsions
- Derusters
- Detergent Additives
- Natural Cleaners

CONVERSION COATINGS

- Iron
- Zinc
- Manganese

DRAWING COMPOUNDS

- Oils
- Emulsions
- Synthetics
- Soap Based
- Polymers
- Vegetable Oil Based Products

FORGING COMPOUNDS

- Graphite
- Oil Based
- Synthetic

MACHINE LUBRICANTS

- Hydraulic Oils
- Way/Slide Oils
- Spindle Oils
- Gear Oils

METALWORKING FLUIDS

- Oils
- Water Soluble Synthetics
- Solubles
- Semi-Synthetics
- Green Cool Product Line (Vegetable Oil Based Coolants)

RUST PREVENTIVES

- Oil/Wax Based
- Water/Synthetic Based
- Solvent Based
- Emulsions

FLUID MANAGEMENT PROGRAMS

- Complete Programs
- Client Tailored Programs

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