# **HOCUT® 795-H**

#### HEAVY-DUTY CHLORINE-FREE MACHINING AND GRINDING FLUID

HOCUT® 795-H is a chlorine-free, soluble oil metal removal fluid with high lubricity. This versatile product can be used in a broad array of heavy duty machining and grinding applications for a wide range of ferrous and aluminum metals including high and low carbon steels (e.g. 1018), alloyed steels such as 4130 and 4140, cast iron, nodular and gray iron, 300 and 400 series stainless steel, automotive grade cast aluminum alloys including 308, 319, 356, 380, 384, and 390.

### **Applications**

HOCUT® 795-H is compatible with hard water, clean-running and biostable assuring long, odor-free sump life and is suitable for both centralized systems and single-sump machines. HOCUT® 795-H provides high corrosion protection without staining and lubricates machine ways and indexing mechanisms. Low foaming characteristics make HOCUT® 795-H an excellent choice for gun drilling and other high pressure applications.

Enhanced lubricity technology improves plant economics:

- Extends tool life
- Improves productivity reduces cycle time
- Provides superior surface finish reduces rework and scrap rates
- Lower running concentration reduces coolant usage

#### Recommendation for Use

OPERATION	TYPICAL USE CONCENTRATIONS
Machining	5 to 10%
Grinding	5%

#### **Benefits**

- Universal coolant: Multi-metal compatible one product satisfies all machining requirements
- Biostable formulation extends sump life. Minimizes waste treatment, disposal, and recharge costs. No repeated need for sump-side additives.
- Low foam: Ideal for high feeds and speeds and high pressure applications
- Contains no boron, chlorine, formaldehyde or silicon

### Health, Safety and Handling

Please consult the Safety Data Sheet (SDS) for information on storage, safe handling and disposal. The conditions or methods of handling, storage, use and disposal of the product are beyond our reasonable control - we assume no liability for any ineffectiveness of the product or any injury or damage, arising out of or in connection with these conditions.

#### **Properties**

PROPERTY	TYPICAL VALUE	UNIT
Appearance (Neat)	Clear Amber	
Appearance (5% Emulsion)	Whitish emulsion	
Typical in use pH	9.1 - 9.3	
Specific Gravity	0.937	
Refractometer Factor	1.0	



# **GARIA® 201 F-10**

# **NEAT CUTTING AND GRINDING OIL**

GARIA® 201 F-10 is based on hydro treated mineral oil with low aromatic content. A combination of polar, extreme pressure and anti-wear additives provide the oil with high load carrying properties. The oil provides good surface finish of the machined work pieces.

GARIA® 201 F-10 is free from Chlorine and heavy metals (Zinc).

## **Applications**

GARIA® 201 F-10 has shown good performance with many machining operations such as milling, drilling, reaming, deep drilling and tapping. For the machining of low alloy steel, magnesuim and aluminium excellent results are achieved.

GARIA® 201 F-10 is proven for many grinding operations. Esp. For the grinding of crank shafts we have received good results. .

#### **Recommendation For Use**

Is used neat as supplied. Sump temperatures above 50°C should be avoided.

#### **Benefits**

- Reduced cost : improved tool life due to high EP power
- Reduced cost: higher production rates due to strong lubricity
- Reduced cost: clean workshop environment due to less oil mist and evaporation
- Simplified storage: versatile product for majority of operations in the workshop.

# Health, Safety And Handling

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# **Typical Physical Properties**

PROPERTY	TYPICAL VALUE	UNIT
Colour	yellow	
Specific Gravity @20°C	0.87	[kg/L] ASTM D4052
Kinematic Viscosity @40°C	10	[mm²/s] ASTM D7042
Flash Point COC	165	[°C] ASTM D92
Pour Point	-18	[°C] ASTM D97
Copper Corrosion	4a	ASTM D130



# **QUAKERCUT® 005 XP**

#### SUPERFINISH AND GRINDING NEAT OIL

Low viscosity extra high performance neat cutting oil based on advanced ester technology from renewable raw materials, particularly suited to honing or grinding operations where good wetting ability is required. This wetting phenomina provides high washing performance ensuring clean finishing stones or grinding wheels.

The product should be used neat.

#### **Applications**

Main application: honing, lapping, tape polishing and grinding.

Ferrous and non ferrous materials.

For more specific applications please consult table below.

#### Operations

Turning, Grinding, Honing-Lapping, ...

#### Materials

Cast-iron, Steel, High alloy steel, Stainless steel, Aluminium alloys, Aero Aluminium alloys, Copper alloys, Titanium, Carbide tool, ...

### **Benefits**

- · Longer tool life resulting in increased productivity
- Low consumption
- · Low oil mist
- · Cleaner working environment
- · Good skin compatibility

#### Health, Safety and Handling

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This product has a recommended shelf life of: 24 months

#### Recommendation for use

Prior to making any fresh fill, we highly recommend full cleaning of all system components which will be in contact with the oil.

Advice for keeping optimal oil performance and longer oil sump life:

- · Avoid water contamination.
- Minimize pollution with aqueous metalworking coolants or cleaners.
- Minimize pollution with tramp-oil (hydraulic oils, slideway oils, etc....).
- Use proper filtration unit to remove swarf and chips.
- Avoid overheating.

\*Please consult a Quaker Houghton representative for any additional information.

#### **Properties**

PROPERTY	TYPICAL VALUE	UNIT
Appearance / Colour	Clear Light Yellow	[-]
Viscosity	5	mm²/s @ 40°C
Density	864	kg/m3 @ 15°C
Flash point (COC)	188	°C
Pour point	- 21	°C
Copper corrosion	1b	[-]



# QUAKERCOOL® 740

**BORON FREE - SEMI-SYNTHETIC** 

QUAKERCOOL® 740 is a boron-free emulsifiable metalworking fluid designed for ferrous machining and grinding operations requiring good lubricity, cleanliness, cooling and corrosion protection.

## **Applications**

QUAKERCOOL® 740 can be used on cast iron and will also perform well for moderate duty operations on steel alloys.

#### Fluid Maintenance

QUAKERCOOL® 740 is to be used diluted into water. Always add product to water to avoid creating an invert emulsion. For most machining and grinding operations, the dilution range is 6-8% maintaining an average of 7% for best biological control. An initial water hardness range of 100-200 ppm (as calcium carbonate) is recommended. Maximum hardness in a central system over time is 600 ppm. Please consult your Quaker Houghton representative for more information or when trying to operate outside of these parameters

# **Cleaning and Protecting**

To clean and protect, after the metal removal operation, use Quaker Houghton cleaners (QUAKERCLEAN®) and corrosion preventives (FERROCOTE®) to enhance process compatibility. Consult your Quaker Houghton representative.

# Health, Safety and Handling

Please consult the Safety Data Sheet (SDS) for information on storage, safe handling and disposal. The conditions or methods of handling, storage, use and disposal of the product are beyond our reasonable control - we assume no liability for any ineffectiveness of the product or any injury or damage, arising out of or in connection with these conditions. This product has a shelf life of 6 months, and it should be stored out of direct sunlight in temperatures between 40°F (4°C) and 100°F (38°C).

#### **Benefits**

- Biostable technology provides excellent sump life and microbiological resistance including mycobacteria
- · Excellent fines handling properties
- Tight microemulsion provides excellent tramp oil rejection and reduced drag out
- Enhanced lubrication package provides excellent results on ferrous alloys

### **Properties**

PROPERTY	TYPICAL VALUE	UNIT
Appearance	Clear to Translucent Amber	
Pounds per gallon at 60°F	8.55	lbs/gal
Odor	Amine	
Typical pH (in use)	9.1 - 9.3	
Neat pH	10.4	
Appearance at 5% diltuion	Transparent to translucent off-white	
VOC (EPA Method 24)	1.66	lbs/gal
VOC (ASTM E1868-10, SCAQMD)	126.07	g/l
VOC at max concentration 10% (SCAQMD)	12.6	g/l



# QUAKERCOOL® 750 TP

#### HIGH PERFORMANCE - MINERAL OIL FREE MICROEMULSION

The QUAKERCOOL® 750 TP is a high-performance, mineral oil free microemulsion metalworking fluid.

## **Applications**

The QUAKERCOOL® 750 TP is a proven performer in demanding Machining and Grinding operations. QUAKERCOOL® 750 TP effectively resists microbiological growth and contains no chlorinated compounds, formaldehyde release agents, Boron, MEA, or secondary amines.

#### Fluid Maintenance

This product is diluted into water prior to use. Always add product to water to avoid creating an invert emulsion. For most hydrotesting operations, the dilution range is 4% to 6% by volume. For most threading operations the dilution range is 10% -12%. Initial water hardness range of 50-300 ppm (as calcium carbonate) is typically suitable. Please consult your Quaker Houghton Process Engineer for more information.

### **Cleaning and Protecting**

To clean and protect, after the drawing and stamping operation, use Quaker Houghton cleaners (QUAKER-CLEAN®) and corrosion preventives (FERROCOTE®) to enhance process compatibility. Consult your Quaker Houghton representative.

#### Health, Safety and Handling

Please consult the Safety Data Sheet (SDS) for information on storage, safe handling and disposal. The conditions or methods of handling, storage, use and disposal of the product are beyond our reasonable control - we assume no liability for any ineffectiveness of the product or any injury or damage, arising out of or in connection with these conditions. This product has a shelf life of 12 months, and it should be stored out of direct sunlight in temperatures between 40°F (4°C) and 100°F (38°C).

#### **Benefits**

- Advanced lubrication technology based on a microemulsion of proprietary synthetic esters
- Provides superior tool life even at low concentrations
- Working solutions range from transparent to translucent depending on makeup water quality
- Excellent short-term corrosion protection is provided on ferrous surfaces

## **Properties - Concentrate**

PROPERTY	TYPICAL VALUE	UNIT
Appearance	Clear yellow to amber fluid	
Pounds per gallon at 60°F	8.18	lbs/gal
Odor	Amine-like	
Flash Point via COC	100   212	°C °F

## **Properties - Dilution**

PROPERTY	TYPICAL VALUE	UNIT
Appearance at 6%	Transparent to translucent off-White Emulsion	
pH (used emulsion)	9.2 to 9.6 (typical)	



# **HOCUT® 3754**

#### VERSATILE SEMI-SYNTHETIC BASED METALWORKING FLUID

HOCUT® 3745 is an economical soluble cutting fluid intended for a broad range of applications in both ferrous applications and aluminum. Containing no chlorine, this product is highly biostable, compatible in very soft water and hard water delivering a resilient emulsion and high quality surface finish on aluminum.

## **Applications**

Machining in 50 ppm to 500 ppm hardness water where system emulsion stability and resistance to biological growth are important for manufacturers not using treated water. HOCUT® 3745 does not stain aluminum, offers clean operation forming very little soap, low foaming in soft water and solid lubricity. On the ALE-2 CNC work center, HOCUT® 3745 effectively drilled holes and reamed to surface roughness of <0.6 um at varying speeds.

#### **Recommendation for Use**

Recommended starting concentration of 5 to 10% for machining aluminum or ferrous parts.

HOCUT® 3745 should be added to water creating an emulsion for use as a machining coolant.

### Health, Safety and Handling

Please consult the Safety Data Sheet (SDS) for information on storage, safe handling and disposal. The conditions or methods of handling, storage, use and disposal of the product are beyond our reasonable control - we assume no liability for any ineffectiveness of the product or any injury or damage, arising out of or in connection with these conditions.

#### **The Benefits**

- A lubricant formulation delivering excellent surface finish and long tool life
- · Reliable resistance to metal staining
- A stable emulsion up to 1000 ppm hardness conditions. Can compensate for the effects of modern high magnesium containing aluminum alloys and house hard water
- Runs clean and doesn't form residues and soap associated with non-ferrous machining
- Reliable resistance to biological growth for extended sump life and recycling programs

### **Properties**

PROPERTY	TYPICAL VALUE	UNIT
Appearance	Amber liquid	
Density at 15.5°C	0.9926	g/cc
pH at 5%	9.8	
Refractometer factor	1.5	



# **HOCUT® 3740**

#### HIGH PERFORMANCE SEMI-SYNTHETIC METALWORKING FLUID

HOCUT® 3740 is an economical soluble cutting fluid intended for a broad range of applications in both ferrous applications and aluminum. This product is highly biostable, compatible in very soft water and hard water delivering a resilient emulsion and high quality surface finish on aluminum.

### **Applications**

Machining in 50ppm to 500ppm hardness water where system emulsion stability and resistance to biological growth are important for manufacturers not using treated water. HOCUT® 3740 does not stain aluminum, offers clean operation forming very little soap, low foaming in soft water and solid lubricity.

On the ALE-2 CNC work center, HOCUT® 3740 effectively drilled holes and reamed to surface roughness of <0.6um at varying speeds. Tapping performed under an internal procedure resulted in HOCUT® 3740 successfully tapping 36 holes at 5% coolant concentration in DI water. Evaluations were performed on 356-T6 and 380 cast alloys.

#### Recommendation for Use

Recommended starting concentration of 5 to 10% for machining.

HOCUT® 3740 should be added to water creating an emulsion for use as a machining coolant.

#### **Benefits**

- A lubricant formulation delivering excellent surface finish and long tool life
- · Reliable resistance to metal staining
- A stable emulsion up to 1500ppm hardness conditions. Can compensate for the effects of modern high magnesium containing aluminum alloys and house hard water
- Runs clean and doesn't form residues & soap associated with non-ferrous machining
- Resistance to biological growth for extended sump life and recycling programs

# Health, Safety and Handling

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## **Properties**

PROPERTY	TYPICAL VALUE	UNIT
Appearance	Amber liquid	
Bulk Density	8.401	lbs/gal
Typical pH in 5% water	9.6 - 9.7	
Refractometer factor	1.5	Brix



# QUAKERCOOL® 7750

SEMI-SYNTHETIC METALWORKING FLUID

QUAKERCOOL® 7750 is a semi-synthetic metalworking fluid formulated with the latest low environmental impact technology but yet delivering superior performance in cutting metals and handling the fluid.

## **Applications**

QUAKERCOOL® 7750 offers a high degree of lubrication for multi-metal machining operations and performs especially well in aluminum tapping and reaming applications. Suitable for brass machining resisting stains on yellow metals.

#### Recommendations for Use

QUAKERCOOL® 7750 has been designed to operate in water conditions from 100 ppm water to 500 ppm. It is also recommended for machining aluminum, ferrous, stainless steel, titanium and high nickel alloys.

# Health, Safety and Handling

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#### **Benefits**

- No intentionally added boron, chlorine and formaldehyde releasers
- Reduces tool wear when machining stainless steel
- · Imparts smooth finish when machining aluminum
- Resists formation of soaps relative to older technology platforms
- Controls foam in water hardness from 50 ppm to 500 ppm

## **Properties**

PROPERTY	TYPICAL VALUE	UNIT
Appearance, concentrate Dilution	Light amber Milky white	
Density, concentrate	8.02	lbs/gal
pH neat, concentrate Dilution (7% distilled water)	9.6 9.2	
Refractive Index Factor for Concentration	1.3	



# DASCOOL® 2360

HEAVY DUTY SOLUBLE OIL MACHINING AND GRINDING FLUID WITH EP ADDITIVES FOR VERY HARD METALS AND SEVERE MACHINING OPERATIONS

DASCOOL® 2360 is a very heavy duty, low foaming, clean running soluble oil metal removal fluid containing extreme pressure additives and synthetic esters for very high lubricity.

DASCOOL 2360 is clean running and biostable assuring long, odor-free sump life and is suitable for both centralized systems and single-sump machines. DASCOOL® 2360 provides high corrosion protection for ferrous materials and lubricates machine ways and indexing mechanisms.

## **Applications**

DASCOOL® 2360 has been specially formulated to handle operations of high severity with stainless steels, cast and forged steels, cast and extruded aluminum, and other non-ferrous alloys including alloys of titanium or nickel. DASCOOL® 2360 can be used for a wide variety of operations such as: reaming, boring, threading, broaching, milling, drilling, turning, gun drilling, gear hobbing, heavy duty grinding, and sawing.

With its low propensity to foam, DASCOOL® 2360 performs well in high pressure operations.

#### Recommendation for Use

Machining: 5 - 10% Grinding: 4 - 7%

#### **Benefits**

- Extends tool life
- Improves productivity reduces cycle time
- Provides superior surface finish reduces rework and scrap rates
- Lower running concentration reduces coolant usage

### Health, Safety and Handling

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#### **Properties**

PROPERTY	TYPICAL VALUE	UNIT
Appearance	Amber liquid	
Density	8.2	lbs/gal
Density	0.98	g/cc
Typical pH in use	9.0	
Refractometer Factor	1.0	



# **HOCUT® 4260**

#### WATER SOLUBLE METALWORKING FLUID

HOCUT® 4260 is advanced, heavy duty, boron-free and formaldehyde-free emulsion technology giving very long sump-life.

A special additive package greatly enhances machining performance and extends tool life compared to conventional products. HOCUT® 4260 is effective when machining aerospace aluminum or fiber composite airframe structural components as well as engine components made of Titanium alloys or Inconel.

### **Applications**

HOCUT® 4260 is an advanced, high lubricity metal removal fluid specially formulated for machining and grinding of a wide range of materials including aerospace aluminum alloys, high-alloy steels, stainless steel, composite materials, titanium and other high temperature alloys for engine parts. In doing so, a proprietary lubricant package reduces tool wear in difficult to machine alloys. In machining and grinding operations where low foam is a required, HOCUT® 4260 successfully resists foaming in a wide range of water hardness. The EHS profile represents the elimination of boron and other undesireable chemical components. The high biostability of HOCUT® 4260 eliminates the need for regular tankside biocide additions where that is desired.

#### **Recommendation for Use**

Heavy duty machining 8 to 10%

### Health, Safety and Handling

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#### **Benefits**

- Versatile: facilitates machining of fiber composites, aero aluminum alloys, ferrous alloys, stainless steel, titanium and other high heat aerospace materials
- High detergency: leaves parts and working environment clean
- Extended tool life: anti-wear additive package minimizes tool wear, saving tooling costs
- Very long sump-life: new HOCUT® 4000 series emulsion technology extends coolant life minimizing waste disposal and direct labor
- Inhibits aluminum staining: can be used for sensitive alloys e.g. 7000 series
- Very low foaming: ideal for the highest speeds and pressures in soft to hard water
- Favorable EHS profile: Free from boron, formaldehyde, chlorine, secondary amine, and phenol

### **Properties**

PROPERTY	TYPICAL VALUE	UNIT
Appearance	Pale yellow	
Specific Gravity at 20°C DIN 51757	0.99	
Refractometer Factor HIM 53	1.5	
Emulsion Appearance	Translucent	
pH at 6% DIN 51369	9.5	



# **HOCUT® 4260**

#### WATER SOLUBLE METALWORKING FLUID

### **Approvals**

HOCUT® 4260 holds the following approvals and conformities:

- Airbus AIMS 12-10-0000 and 80T-30-4010: ASTM F483; ASTM F1110: Table A7.1
- Airbus AIPI 01-02-003: Aluminium Elementary Parts NCF1378
- Airbus AIPI 03-11-001: Conforms to the requirements
- Boeing BAC 5008 cat. 5 & 6 (independent lab testing): conforms
- Bombardier BAMS 569-001: Class A, C, D: approved
- Dassault: approved
- SAFRAN Aircraft Engines: PR 6300 approved on all materials
- Messier Dowty (SAFRAN Equipment): approved PCS4001/PCS4002

