



The Selection Skill of **MORS** Metalworking Fluid



英国磨润斯油金属切削液的选择技巧

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MORS Oils Company

Established in Brighouse West Yorkshire England in 1887 by the PEJRS family and with over 100 years of lubricant manufacturing experience, PEJRS oils has today a very wide range of products in the world. With the long history and good qualities, Metalworking Fluids are one of the most advanced products supplied to many famous European Mechanical equipment Companies.

建于1887年英国西约克郡Brighouse的磨润斯石油公司，具有100多年的润滑油生产经验在全世界多个领域拥有自己的产品。其中金属切削液以其悠久的历史 and 优秀的品质作为世界高端产品长期供应于欧洲各大机械设备公司。



Principles of Metalworking Fluid

□ Neat Cutting Fluid

油性切削液

□ Soluble Cutting Fluid

水溶性切削液



Principles of Metalworking Fluid

□ Neat Cutting Fluid

油性切削液

- Lubrication

润滑作用

- Reduce Friction

减少摩擦

□ Soluble Cutting Fluid

水溶性切削液

-Cooling

冷却作用

-Reduce Heat

减少热量



Product Selecting Skills

General Rule

基本规则

□ Neat Oils

油性切削液

-Heavy Duty

重负荷

- Lubricity

润滑

□ Soluble Fluid

水溶性切削液

-Light Duty

轻负荷

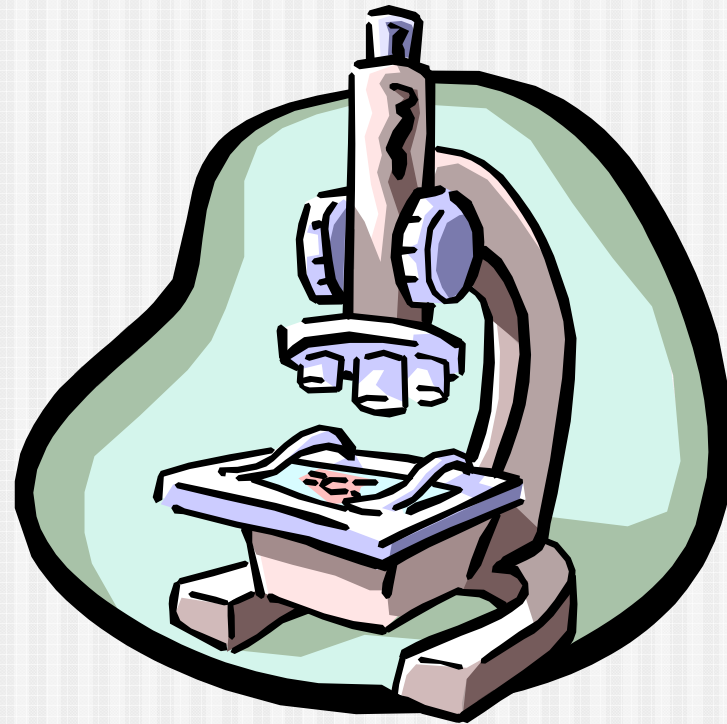
-Cooling

冷却



Product Selecting Skills – Neat Oils

What Are in the Neat Cutting Fluid?
油性切削液里有什麼？





Product Selecting Skills – Neat Oils

Neat Cutting Fluids Basically Contains:
油性切削液通常包括:

- ✓ Mineral Oil 矿物基础油
- ✓ Additives 添加剂
- ✓ Enhancers 性能增强剂



Product Selecting Skills – Neat Oils

Key Factors For Neat Oils :

油性切削液的关键因素：

- Viscosity 粘度
- Additives 添加剂
- Enhancers 性能增强剂



Now Let's Talk About :

让我们来讨论：

Soluble Cutting Fluids

水溶性切削液



Classification

分类

- ❑ Conventional (Milky Emulsions) 传统
(乳化液)
- ❑ Semi-synthetic 半合成
- ❑ Synthetic 全合成



Features

特点

- ❑ Oil Contain 含油
- ❑ Emulsion Type 乳化类型
- ❑ EP Additives 极压添加剂
- ❑ Enhancers 性能增强剂



An Unqualified Soluble Cutting Fluid Is Always:

品质不良的水溶性切削液总是：

- ❑ Short Sump Life (Only One Month)
缩短使用寿命（仅一个月）
- ❑ Easily to be bad smelled 容易变臭
- ❑ Foaming 大量泡沫
- ❑ Poor Surface Finish 降低加工精度
- ❑ Short Tool Life 缩短刀具寿命
- ❑ Limitation to Water Hardness 苛刻的水质要求



MORS HB***系列-极压半合成微乳金属切削液

FORMULATED FOR THE FUTURE,
HERE TODAY

切削极限，完美体现

MORS HB***系列



MORS HB***系列极压半合成微乳金属切削浓缩液

□ MORS HB*** has been developed by
MORS Oils

MORS HB***系列是由磨润斯公司研制开发的

□ MORS HB*** is originally developed to meet the strict requirement of environment protection in Europe and overcome the **foaming and bacterial / fungus** problems

开发MORS HB***系列的初衷是迎合欧洲日益严苛的环保要求以及解决普遍存在的泡沫和细菌现象



Strength 特别优势

❖ Unique For Its Low Foam Tendency

具有独一无二的抗泡性

MORS HB*** offers excellent performance over all metal types and due to its foaming tendency is the product of choice for grinding operations

❖ Extremely Resistant To Bacterial And Fungus 特别强的抗菌能力

MORS HB** has an excellent sump life with good emulsion stability and excellent bacterial resistance



MORS HB***系列极压半合成微乳金属切削浓缩液

Customer Benefits 客户受益(1)

Product Feature 产品特点	Operation Advantage 操作优点	Customer Benefits 客户受益
Exceptional emulsion stability and bacterial resistance 乳化液高度稳定及抗菌性	Long Coolant life 使用 寿命长	Low maintenance cost, cost saving 低廉维护成本，节约成本
Does not contain nitrites and phenols 不含亚硝酸盐和酚	Lower Disposal Cost, not harm to operator 排放处理成本低，对操作者无害	A good working environment=operator friendly 一个良好的操作环境，亲和操作者
Low foaming properties 抗泡性强	Allows higher machining speeds 能满足较高速操作	Trouble free operation Maintenance cost savings 无顾虑操作，维护成本低



MORS HB***系列极压半合成微乳金属切削浓缩液

Customer Benefits 客户受益(2)

Product Feature 产品特点	Operation Advantage 操作优点	Customer Benefits 客户受益
Can be used on a wide range of metals and operations 适用于大多数材料和加工方式	Extremely versatile 适用范围广泛	Allows product on one grade throughout the machine shop 一种产品满足各种机器使用
Good corrosion protection 防锈性能良好	Will not rust the work pieces, machines beds and slide ways 不会锈蚀工件，机器和导轨	High quality outputs increased production efficiency 加工精度高，提高效率
Extreme pressure performance 极压性能好	Excellent tooling performance 令刀具有极佳表现	Cost savings increased production efficiency 节约成本，提高生产效率



□ Achieved Successful Stories

取得成功的实力

□ Proved to Engage a Versatile Properties

被证明是品质好通用性强的产品

□ Satisfied Customers' Benefits

满足了客户的利益



MORS HB***系列极压半合成微乳金属切削浓缩液

We Are Confident to
Recommend MORS HB

in China

在中国，我们自信地向您推荐！



MORS HB***系列与同类型产品的互换

MORS英国磨润斯石油公司	同类产品公司	同类产品
<p style="text-align: center;">MORS HB*** 极压半合成微乳金属切削浓缩液</p>	Castrol嘉实多	CLEAREEDGE EP 690 EP 88, SYNTILO R+ C
	Blaser巴索	Blasocut 2000/4000系列
	ARAL德国亚拉	Carol 445EP Carol 450EP,460EP,470EP
	Quaker奎克	Quakeral 370
	Fuchs 德国福斯	ECOCOOL 22 ECOCOOL ALU CF/ALU CF2 ECOCOOL EM ECOCOOL ALU ECOCOOL RESIST EP
	CALTEX 加德士	Aquistex ALH2(安快达) Aquistex H1 (安快达H1) Aquistex H2 (安快达H2)
	Master美国马斯特化学	TRIM MICROSOL 165 TRIM MICROSOL 265



MORS HF600全合成磨削浓缩液

Grinding Fluid Technique Main Point

磨削液的技术要领

The development of new type grinding fluid must be based on the cooling and lubricating ability of grinding fluid, and this can decrease the wearing out and jam, so that raises its life

新型磨削液的开发必须根据磨削液对磨削区所提供的冷却和润滑的能力来进行，以减少砂轮的损耗和堵塞，提高其寿命。



MORS HF600全合成磨削浓缩液

Grinding Wheel Material

砂轮材料

Super Grinding Boron Nitride
含超级磨料氮化硼 (CBN)

CBN



Reasons causing bad performance of Grinding Wheel

导致砂轮性能变坏的原因

- | | |
|-----------------------|---------|
| 1) Grinding Wheel Jam | 1) 砂轮堵塞 |
| 2) Wearing out | 2) 损耗 |

Grinding jam will aggravate the grinding temperature increasing, and cause grinding grain loss, smashing into pieces or coming off

砂轮堵塞会加剧磨削温度升高，必然引起磨粒材料的损失，磨粒被打碎或脱落



Reasons of Grinding Wheel wearing out 砂轮损耗的原因

- ❑ Friction wearing out
- ❑ Grinding Grain damage
- ❑ Grinding Grain come out
- ❑ Adhere and Deform
- ❑ 摩擦损耗
- ❑ 磨粒损坏
- ❑ 磨粒脱落
- ❑ 黏结变形



Principle of Grinding Fluid 磨削液的重要作用

Grinding Fluid has great influence on the wearing out , jam and cutting rate of the grinding wheel. Grinding Fluid can Overcome the unfavorable factor, and keep the best state and grinding rate of grinding wheel.

磨削液对于砂轮的损耗和堵塞，以及保持砂轮可接受的金属切削率有很大的影响，磨削液在磨削工作中减少砂轮的堵塞和损耗的能力，对于保持砂轮的最佳状态和磨削效率至关重要。



Validity of Grinding Fluid

磨削液的有效性

Validity of Grinding Fluid is decreasing friction, cooling grinding wheel and tools, and keeping them clean. It has great influence on optimizing metal cutting rate and increasing grinding wheel life and the tool's quality.

磨削液有效性表现在能够减少摩擦力、冷却砂轮和工件、防止热损伤、保持一个干净的砂轮和工件表面，对于优化金属切削率、提高砂轮寿命和工件质量是至关重要的。



MORS HF600与同类型产品的互换

MORS 英国磨润斯石油公司	同类产品公司	同类产品
MORS HF600 全合成磨削浓缩液	Castrol嘉实多	SYNTILO 9930C SYNTILO 81E
	ARAL德国亚拉	Multrol 800 Multrol 820
	Quaker奎克	Quaker 2769DL
	Fuchs 德国福斯	S-HL, SC-H
	CALTEX 加德士	Aquastar(快思达)
	Master美国马斯特化学	TRIM C270 TRIM 9106CS



MORS HF600全合成磨削浓缩液

MORS HF600 Fine Grinding Product

MORS HF600磨削精品 砥砺前行

MORS HF600 is tested and used by many customers, and it is one of the best grinding fluid products in Europe.

MORS HF600配方经过精心设计，反复评价试验，再加上众多的使用厂商验证，不失为欧洲磨削液中之精品。



Our Best Service

提供最好的服务，与客户共赢市场

上海驿盟为每个使用者建立使用档案，定期派员检查、维护；为机床保驾护航。

为机械行业创造价值是我们的工作宗旨。

今天的产品，明天的技术。即刻应用，即刻受益！



Products Value Assessment

产品价值评估六因素--不仅仅是价格！

- 1) 价格-----每公斤多少钱。通常的误区是仅探讨价格，而忽略产品价值。
- 2) 使用浓度-----稀释比例。
- 3) 使用周期-----需要多长时间更换。
- 4) 稳定的使用性能-----加工效果好坏，保护机床和刀具，减少废品率。
- 5) 减少更换次数-----减少停工时间。
- 6) 供应商的服务能力----- 为客户解决实际问题。



Coolant Management & Trouble Shooting

冷却液的管理和故障排除



Coolant Management

Problems you probably meet in daily use

您在使用切削液时通常会碰到的问题

- Concentrates deteriorated

原液变质

- Emulsion not stable

乳化液不稳定

- Corrosion

生锈

- Unpleasant smell

有异味

- Foaming

泡沫

- Skin irritation

对皮肤有刺激





Soluble Cutting Fluid

The Coolant Management of Soluble Cutting Fluid

水溶性切削液的管理

- **Correct Storage**

正确的储存

- **Effective Mixing is Critical**

完全混合是重要环节

- **Water Quality is Crucial**

水的质量也极为重要

Soluble Fluid Require More Care
水溶性切削液需要更细心的管理



Soluble Cutting Fluid

What limits emulsion performance(1)

影响乳化液的因数(1)

System cleanliness is poor

设备清洁度不够

- Emulsion instability

乳化液不稳定

- Bacterial growth

细菌滋长

- Cause skin irritation

引起皮肤过敏

- Stain and foam

污染和泡沫

Troubleshooting

如何解决

- ✓ Using a suitable cleaner

选择正确的清洗剂

- ✓ Following the correct cleaning stages

遵循正确的清洗步骤

- ✓ Checking the concentration and bacteria

注意检测浓度和细菌含量



Soluble Cutting Fluid

What limits emulsion performance(2)

影响乳化液的因数(2)

Incorrect Top up 不正确的添加影响乳化液性能

- Add water to oil

把水直接加入油中

- No agitation

没有搅拌

- Violent agitation

过于激烈的搅拌

Trouble shooting

如何解决

- ✓ Correct mixing

严格遵循调配原则



Soluble Cutting Fluid

What limits emulsion performance(3)

影响乳化液的因数(3)

Contamination Limits Performance(a)-Sources

污染物影响乳化液性能(a)-来源

- Swarf And Workshop Debris 金属屑片和车间废物
- Tramp oil 杂油
 - Hydraulics 液压油
 - Slide way oils 导轨油
- Incorrect water type 不好的水质
- Dust and Dirt 尘埃及污物
- Machined Components 工件
- Food And Drinks 食物和饮料
- Used Workshop Fluids 使用过的切削液
- Human Wastes 人体排泄物



Soluble Cutting Fluid

What limits emulsion performance(3)

影响乳化液的因数(3)

Contamination Limits Performance(b)

污染物影响乳化液性能(b)

■ Risks of Harmful Bacteria

可能出现有害细菌

■ Poor Quality Machining

劣质的加工

■ Reduces PH

降低PH值

■ Emulsion Stability

乳化稳定性

■ Increased Risk of Corrosion

增加腐蚀的机会

■ Bad Odours

难受的气味

Trouble shooting

如何解决

✓ Ensure effective filtration

确保充分过滤

✓ Keep machines and workshops clean

保持机件及工作间清洁

✓ Checking the water quality

注意检测水质



Soluble Cutting Fluid

What limits emulsion performance(4)

影响乳化液的因数(4)

Effects Of Low Concentration

低浓度的影响

- Microbial Activity

滋生微生物

- Reduced PH / Corrosion

PH值下降/腐蚀

- Poor Tool Life

刀具寿命下降

- Poor Workpiece Finish

不理想的刀具光洁度



Soluble Cutting Fluid

What limits emulsion performance(5)

影响乳化液的因数(5)

Effects Of High Concentration

高浓度的影响

- De-Fatting and sensitization Of Operators' Skin
使操作工人皮肤出现脱脂和过敏反应
- Foaming problem
容易引起泡沫问题
- Poor Rejection Of Tramp Oil
排斥油污能力弱
- NO Millers products are recommended above safe working limits
任何米勒斯产品也有安全限度，不应超越



Soluble Cutting Fluid

Good Maintenance Practice (1)

良好维修操作（1）

- Ensure Effective Filtration

确保充分过滤

- Continue Circulating Fluids at Weekends, at Reduced Flow Rates

在周末期间以低速继续让切削液循环

- Monitor Fluids In-Service Regularly

定期检查



Soluble Cutting Fluid

Good Maintenance Practice (2)

良好维修操作（2）

- Do Not Let Emulsion Overheat

不使乳化液过热

- Take Corrective Measures Promptly From Advice Of Service Engineers

在服务工程师的指导下进行量度与调节

- Discard Unsatisfactory Emulsions

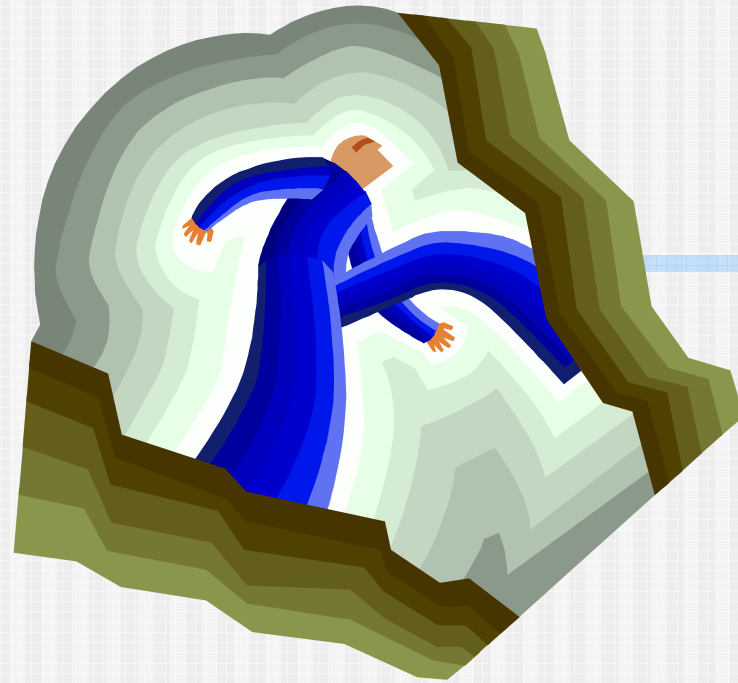
排放不合理的理想乳化液

- Keep Machines And Workshops Clean

保持机件及工作间清洁



Neat Cutting Fluid



Neat Oils Are Easier to Manage

油性切削液相对容易管理



Neat Cutting Fluid

The Coolant Management of Neat Cutting Fluid

油性切削液的管理

- Correct storage
正确的储存
- Machine preparation
机床的准备
- Condition management
现场管理
- Fluid control
杂油控制





Neat Cutting Fluid

Major Factors to Failure-Neat Oils(1)

油性切削液失效的主要因素(1)

❖ Wrong Recommendation, Oil Vs Application

对加工方法推荐错误产品

- Tool life 刀具寿命

- Surface finish 工件表面精度

❖ Foaming / Emulsification / Air Release

起泡/乳化/空气释放

- Air entrainment 含有空气



Neat Cutting Fluid

Major Factors to Failure-Neat Oils(2)

油性切削液失效的主要因素(2)

- Water Contamination 受水分污染
- Corrosion (chlorinated oils) 腐蚀(氯离子)
- Oxidation 氧化
- Corrosion 腐蚀
- Viscosity increase 粘度增加
- Tarnishing 生锈



Neat Cutting Fluid

Correct action of solving problem 解决问题的正确方法

- Looking for changes
寻找变化
- Check, Gather And Record
注意检查和记录
- Keep good communication
与米勒斯工程师保持紧密联系
- Do not allocate blame
不要相互指责



Metal Working

Health and Safety

健康与安全

- ❖ Clean Fluids 溶液净化
- ❖ Designed to be Safe 安全配方
- ❖ High Protection Level;s 高的保护
- ✓ Gloves 手套
- ✓ Machine guards 机器防护装置
- ✓ Barrier creams 护手高
- ❖ Good Code of Practice 好的操作习惯
- ✓ Personal hygiene 个人卫生