

Neat Oils



liquidtool[®]
BOOSTS YOUR PRODUCTIVITY

Cutting Oil Functions

Primary Functions

- Lubricate
- Cool
- Remove Chips
- Corrosion Protection

Secondary Requirements

- Aeration Control, Foam & Entrained air Control
- Safety: Reduced Flash Fire Risk
- Safety: Mist, Smoke
 - If it smokes your starting to reach the flash point

Cutting Oil Ingredients

Mineral Oil

- Mineral oils (distillate of petroleum) are hydrocarbon chains derived from the by-product in the refining of petroleum to produce gasoline.
- Moderate lubricity up to approx. 300°C / 570°F

Vegetable Oil

- Rapeseed (canola), castor, sunflower, tropical oils
- Excellent lubricity in lower temperature ranges up to approx. 200°C / 390°F. These are Polar additives.

Synthetic Oil

- PAO (Polyalphaolefins) Hydrocracked, Synthetic Esters
- Medium lubricity in all temperature ranges up to approx. 400°C / 750°F

Cutting Oil Ingredients

Anti-Oxidants

- Help prevent degradation of ingredients

Anti-Foam

- Silicone Derivatives, Silicates, Calcium Soap

Odorants

- Perfumes to enhance the smell of the finished product

Oil Terminology - Viscosity

Viscosity

- Measurement of a fluid's internal resistance to flow.
- Low Viscosity = “like water”, aka “thin”
- Heavy Viscosity = “like honey”, aka “thick”
- Sometimes referred to as the weight of the oil (heavy vs. light)
- Temperature changes the viscosity index of an oil.



Lower viscosity oils have lower flashpoints!

Start Up - Testing Oil Performance

Slowly increase feeds, speeds and depth of cut until

- Finish becomes unacceptable
- Oil smokes
- Load meter too high
- Tool wear is unacceptable

Back off slightly until parameters are acceptable

- Vary chip removal parameters
- Decrease or increase feed until finish and tool life are optimize while productivity is maximized.

Be careful pushing the limits on small diameter work!

Contaminants in Cutting Oils

Oil Life

- Generally, decreased tool life and smoke tend to be the accepted indicators of BAD OIL. Reducing/eliminating contaminants and good filtration will greatly increase oil life and retard degradation. Indefinite oil life is achievable with good housekeeping and superb filtration.

Tramp Oil

- Oil leaking from bar feeders, waylube, spindle and hydraulic systems will mix homogeneously with cutting oils. Separation is impossible. Skin problems may occur from excessive tramp oil. Viscosity will rise or fall.

Contaminants in Cutting Oils

Fines

- Metal fines will increase the natural oxidation tendencies of oil, resulting in rapid loss of lubricity. Skin problems possible (Ni, Cr, •Pb).

Water

- Water (condensation moisture) and food items also cause problems, these often leading to corrosion.

Maintenance - Recycling

Chip Recovery

- Drag-out rates on chips can amount to a sizeable oil loss.

Filtration

- Most effective are D.E. filters. Centrifuges also work well. Paper filters (to 1-2 microns) work, but disposal of filter paper may be an environmental issue.

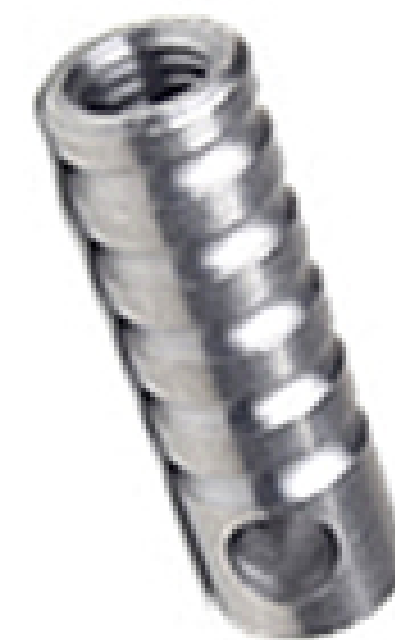
Decanting

- Cutting Oils, especially the lower viscosity types, decant well. Remember, tramp oils will **NOT** separate.

Target Market

Swiss-style screw machines, both CNC & Cam Machines

Target brands: Star, Citizen, Tornos, Nomura, Tsugami, Index, Guildemeister, Schutte, Hanwha, and others.



Marubeni Citizen-Cincom Inc.

Product Family - Vascomill

Vascomill

- Chlorine Free
- 10 (395f), 15, 22(424f), 35, 42(482f) ISO viscosity

Vascomill CSF

- Chlorine & Sulfur Free
- 10, 22, 35 ISO viscosity

Vascomill HD

- Heavy Duty, chlorinated
- 20 viscosity, 10% chlorine, 53% ester content

Vascomill MMS

- Minimal Quantity Lubrication (MQL Only)
- 22 viscosity, Chlorine & Sulfur Free

Product Family - Blasomill

Blasomill GT

- GTL base oil, water white (clear) in appearance.
- Sulfurized, best performance on stainless steel.
- **15 & 22 cSt, Chlorine Free, 1.3% Sulfur**

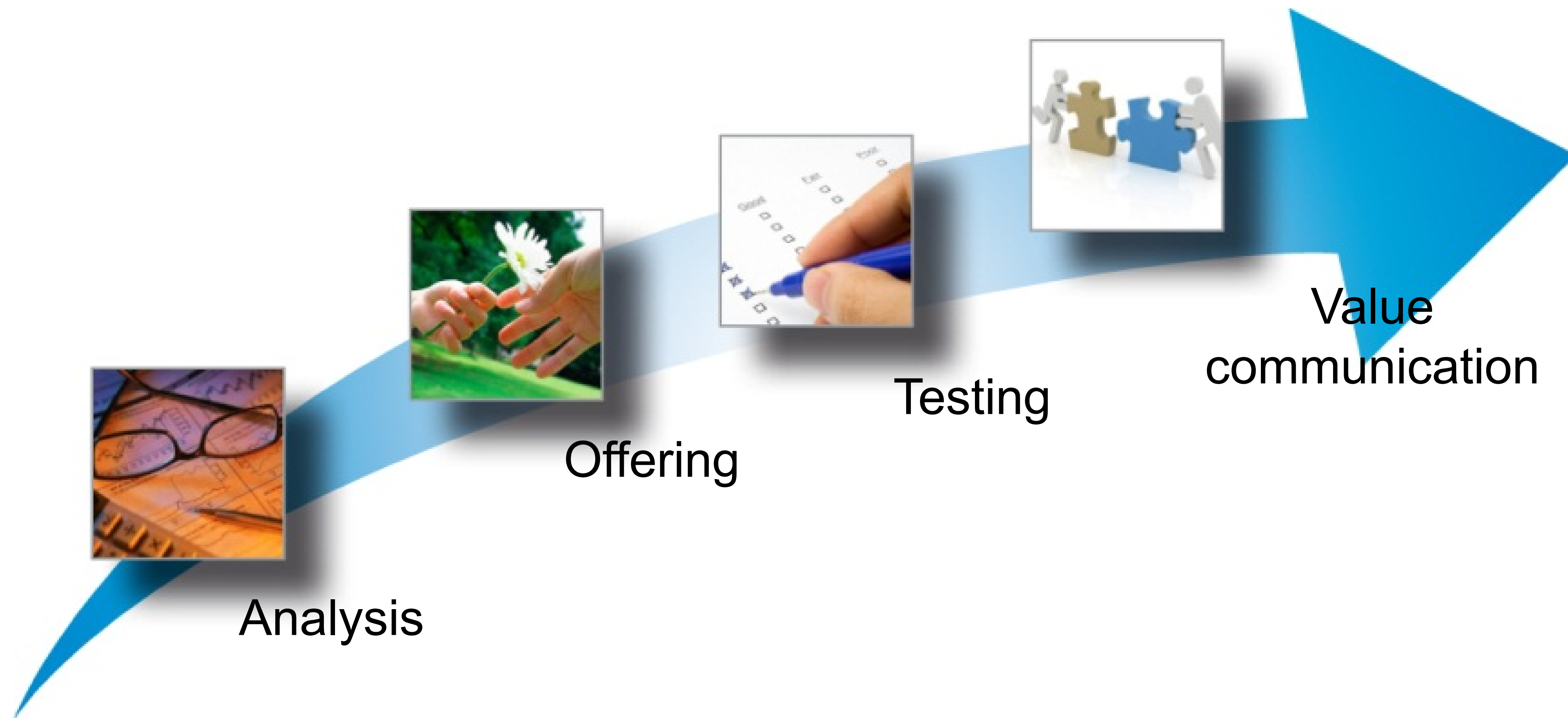
Blasomill CMP

- Highly chlorinated tapping fluid
- 1,200 ISO viscosity
(yes, 1,200!), 49% Chlorine

Blasomill TLB

- Chlorine free Boeing Approved gun drilling oil
- 10 ISO viscosity

Our 4 Part Sales Process



We do not offer a solution to the customer until after a proper process analysis!

Questions?



Thank You!



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