Controls bacteria in metalworking fluids without chemical biocides

Eliminates fluid odors caused by bacteria and fungus

Increases time between fluid dumps

Patented reactor and UV lamp do what cannot be done with conventional fluid treatment units
UV Light that Works
Because it’s Different...

Triton Thalassic Technologies, Inc. (T3I) has developed a unique light source. It is not only the largest, highest output, monochromatic UV light source available, it is also an efficient and reliable industrial tool.

The monochromatic output of this source has been selected to achieve high levels of germicidal effectiveness while preserving the critical chemical constituents that allow metalworking fluids (MWFs) to cool, lubricate and inhibit corrosion.

The patented FASTAC (Fluid Application Specific Treatment and Control) reactor produces a fluid dynamic that maximizes the system's effectiveness, enhancing the interaction of microorganisms with UV light.

The system addresses a critical worker health issue while providing an attractive return on investment.

The FASTAC system is simple and cost effective, removing the need for bio-stabilizers. It contains virtually no moving parts, promising safe reliable operation and a minimum of operator interaction.

The level of treatment can be adjusted to match plant objectives in a cost-effective way. FASTAC makes your facility a better place to work by eliminating the rancid odors and skin irritation associated with tank-side chemical additions.

Bacteria and fungus levels are reduced – not taken to zero, but decreased by >99% and maintained at a low stable level. This enhances fluid lifetime and performance, making the use of supplemental biocides unnecessary.

Now a UV System that can treat opaque metalworking fluids!

Conventional UV systems built to treat water can't treat MWFs. T3I specifically designed the FASTAC unit for metalworking and metal removal fluids. The system is unique – patents have been granted for both the light source and the reactor design. The FASTAC system provides biocide-free microorganism control for soluble oil, semi-synthetic and synthetic metalworking fluids.

FASTAC has been designed for easy installation on existing fluid systems. FASTAC’s control system monitors fluid flow, adjusting power as needed. The unit is also self-cleaning and requires very little maintenance – turn it on and forget about it. The units are designed to connect with existing plumbing and operate within a humid plant environment. The specifications for a typical installation are given on the back cover.
We take coolants seriously

T³I realizes that an effective fluid treatment process must consider both fluids and the systems that use them. Our proprietary computer model is used to size FASTAC installations. The dynamic simulator was developed using data gathered from earlier FASTAC installations at powertrain facilities and includes inputs for system volume, type and concentration of fluid, flow conditions, carry-off rates, make-up water additions, plant scheduling, system ecology, and customer-specific treatment requirements.

Models are only as good as the input data so T³I has its own state-of-the-art laboratory facilities available to identify and address microbiological issues with metalworking fluids. Several small-scale (500 to 1000 gallons) coolant systems are used to benchmark performance and optimize effectiveness. Smaller volume bench top systems process coolants to improve our understanding of the ecology of MWF systems. This knowledge is used to size FASTAC systems for the wide variety of installations used in the automobile, farm equipment, aerospace and food packaging industries.

About T³I

T³I applies a multi-disciplinary expertise to exploit opportunities in a range of technical and business challenges through the creation of unique technologies. Using both the problem solving tools and physical insights of microbiology, environmental toxicology, fluid dynamics, systems engineering, plasma-physics, and chemistry, T³I imaginatively conceives, quickly develops and efficiently manufactures products to address customer-specific needs.

Our proprietary technologies developed for the marine and manufacturing industries control microorganism growth within industrial fluids, replace many chemical additives with light energy, and modify existing processes to reduce process time and waste.

CENTER: A plant-scale coolant reservoir is used to benchmark FASTAC performance at T³I's product development center.

TOP LEFT: Samples are analyzed by T³I microbiologist using a spread plate method with serial dilution followed by incubation to determine bacterial concentrations in the MWF.

TOP RIGHT: This information is combined with performance data and customer feedback gathered from earlier powertrain installations and entered into our dynamic model. In the example shown, bacteria levels are tracked for both FASTAC (Blue) and tank-side treatment (Red).
Let Us Build One for You

FASTAC units can be scaled to treat 1,000 to >100,000 gallons of MWF. The system described below will treat a sump containing 10,000 to 30,000 gallons, depending on the required treatment level. Connection details will vary depending on the scale of installation.

### MECHANICAL DESIGN

**Metalworking Fluids**
- Connection size/type: 4" F-NPT
- Minimum pressure (for flow calculation): 40 psig
- Flowrate available for FASTAC: 400 gpm

**Cooling Water**
- Connection size/type: 3/4" F-NPT
- Minimum continuous flowrate available for FASTAC: 4 gpm
- Source tap/municipal

**Air**
- Connection size/type: 1/4" F-NPT
- Minimum pressure (for flow calculation): 60 psig
- Quality (ppm oil/particulates): standard

**Electrical**
- Power: 480/3ø/60 Hz
- Max current: 60A/ø

To have a FASTAC system built for you, please contact T³I. After an analysis of your fluid and a discussion of your required level of treatment a quote will be prepared. To facilitate this process, T³I requests the following information:

- A small (50 to 100mL) sample and brief description (manufacturer and concentrate level) of the fluid as used.
- A general description of the fluid contamination problem and your treatment objectives (odor control, biocide replacement, target CFU/mL, etc.)
- System volume, flow characteristics, filtration (if any), make-up rates, and other available production data.
- A history of bacterial sampling (if available).

A FASTAC can be scaled and a unit quote generated using your fluid’s chemical, biological and optical characteristics, our dynamic model and the information provided on your system.

A visit to your site by T³I applications engineers is recommended.