THERMAL EMULSION BREAKER

FILTRATION FT 212C WASTE DISPOSAL

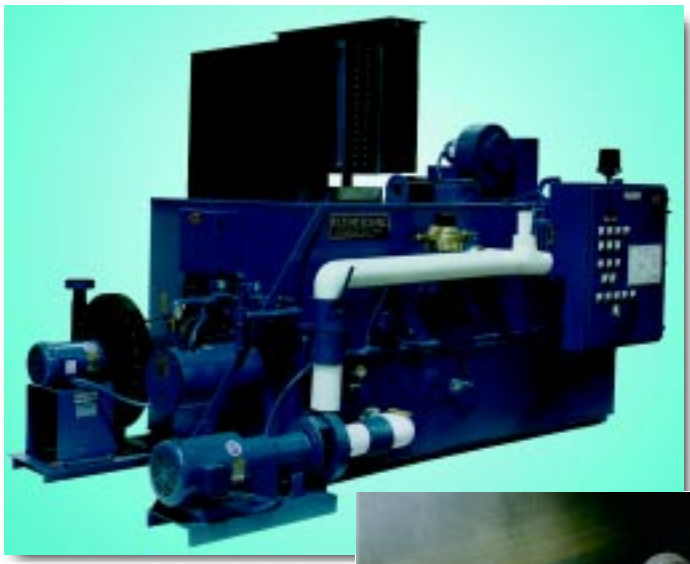
COST EFFECTIVE WASTE REDUCTION OF SPENT EMULSIONS AND AQUEOUS BASED SOLUTIONS

Many industrial processes generate aqueous based waste streams which require either on-site treatment or off-site disposal. These waste streams quite often are comprised of mostly water which you pay by the gallon for treatment or disposal. In addition to this cost there is ever increasing pressure to reduce the amount of waste generated, disposed of off-site, and discharged to drain.

The Thermal Emulsion Breaker model TEB utilizes evaporation, the simplest and most efficient concept for concentrating aqueous wastes. The TEB is available in both the standard non-boil (IH) and boil (IHB) models to meet your specific application requirements.

The TEB produces two components from the breaking process, highly concentrated oil and either water vapor or distilled water if a condenser option is incorporated. There is no need for further treatment because the water vapor is discharged safely to atmosphere or condensed for reuse or disposal.

Other processes such as chemical splitting are operator intensive and are not effective on all waste streams. Ultrafiltration is also used but is unable to achieve the extremely high oil concentrations of 90-95% possible with the TEB.



TEB800-IH rated for 800 GPD incorporating and internal natural gas fired burner and optional condenser.

Internal serpentine combustion tube constructed of stainless steel.

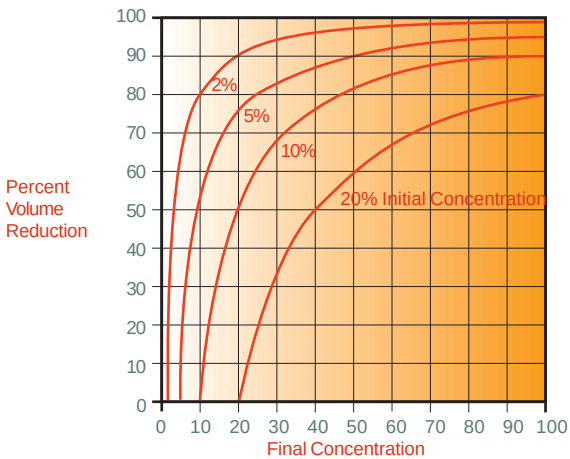
COST SAVINGS

Significant cost savings can be achieved by utilizing a TEB to reduce your waste volume. This can be estimated by using the following formula and Fig 1.

$$\text{Savings} = V \times R \times (D - E)$$

where: V = Volume in Gals.
R = % reduction (fig. 1)
D = disposal cost in $/gal.
E = TEB operating cost in $/gal.

Figure 1.



EQUIPMENT FEATURES

Solid Construction

- Heavy gauge reinforced 304 SST construction.
- 304 SST recirculation and spray header manifold piping (optional on IHB models).
- Optional 304 SST discharge stack w/304 SST mist eliminators.
- High reliability 316 SST level float switches.
- All components are industrial grade.
- Air blower pushes dry air into TEB instead of pulling saturated air through blower.

Efficient Design

- Fully insulated heating chamber.
- Increased surface area for higher evaporation rates.
- High efficiency natural gas or propane fired burner.
- Special serpentine combustion tube design to maximize burner efficiency.

Ease of Operation

- Fully automatic feed, recirculation, cookdown and discharge cycles requiring minimal attendance.
- 304 SST gasketed hatch for easy cleanout of solids.
- Removable combustion tube for easy cleaning.

FILTERTECH

Main Office/Factory
Fairgrounds Drive, Manlius, NY 13104
TEL (315) 682-8815; FAX (315) 682-8825
E-mail: info@filtertech.com
Web site: http://www.filtertech.com

West Region Office
51 W. Elliot Rd., Suite 104, Tempe, AZ 85284
TEL (480) 775-1111; FAX (480) 775-0604

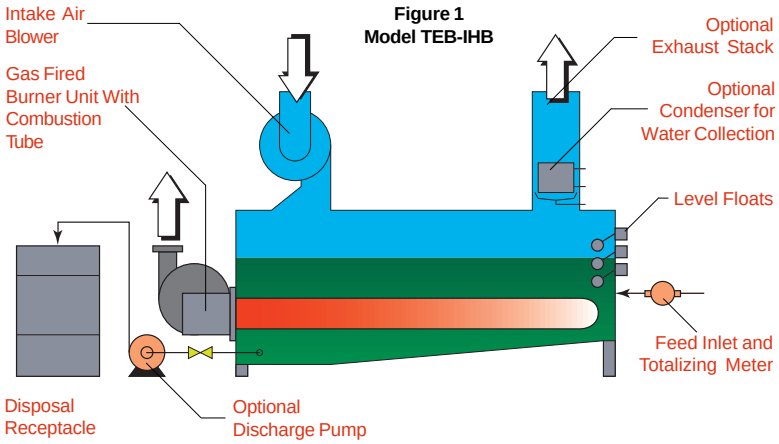
THEORY OF OPERATION

Spent solution is automatically fed into the TEB heating chamber by an optional feed pump. The TEB uses a gas fired burner which creates a combustion flame that is directed down the removable serpentine combustion tube submerged in the spent solution. As the hot gases travel down the tube, the heat is transferred into the liquid and the cooled gases are exhausted to atmosphere.

Once the solution reaches temperature it evaporates into the air volume above the liquid. To aid the evaporation process, a pump is used to circulate the hot solution from the bottom of the heating chamber to a series of spray headers located above the liquid (optional on model IHB). These sprays also assist in foam suppression and the break up of any oil layer which may form on the surface of the liquid.

An air blower is used to enhance the removal of water vapor by moving dry air through the spray mist and exhausting the water vapor out the optional discharge stack. To prevent overspray from exiting the unit, mist eliminators and coalescing elements are incorporated in the discharge stack.

Figure 1
Model TEB-IHB



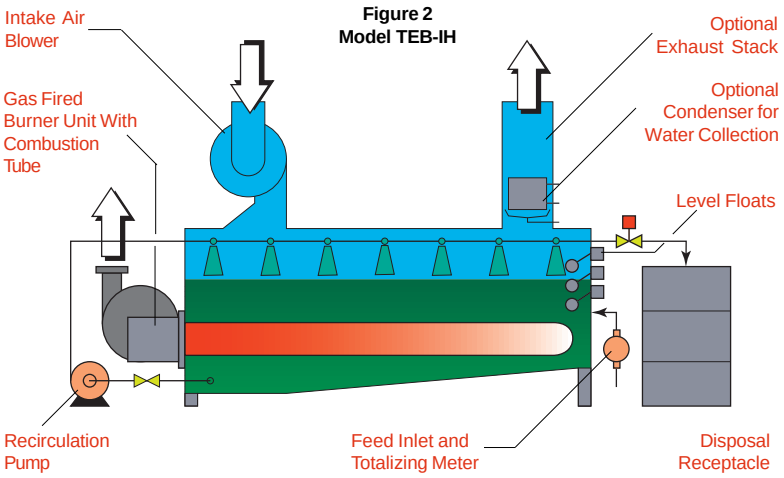
As the water phase is evaporated, the liquid level drops and is sensed by the level control floats. Additional liquid is then added to the heating chamber to maintain proper operating level. This fill/evaporation cycle continues for a preset period of time dependent upon the initial contaminate concentration.

At the end of the fill/evaporation cycle, the feed is shut off and the remaining liquid in the chamber is further concentrated.

Once cook-down is complete, an optional discharge pump is activated for concentrate removal to a drum or waste receptacle for disposal. The chamber is then automatically refilled and the process cycle repeated.

The heating chamber is provided with a sloped bottom and a large clean-out access hatch for easy removal of any accumulated solids.

Figure 2
Model TEB-IH



Model	Capacity gpd†	Oper. Vol. gals	Dimensions l x w x h	Model	Capacity gpd†	Oper. Vol. gals	Dimensions l x w x h
TEB100-IH	100	270	90” x 60” x 72”	TEB200-IHB	200	270	90” x 48” x 72”
TEB200-IH	200	405	114” x 60” x 72”	TEB400-IHB	400	405	114” x 48” x 72”
TEB400-IH	400	540	114” x 72” x 72”	TEB800-IHB	800	540	114” x 60” x 72”
TEB600-IH	600	720	138” x 72” x 72”	TEB1200-IHB	1,200	720	138” x 60” x 72”
TEB1000-IH	1,000	1,125	162” x 84” x 72”	TEB2000-IHB	2,000	1,125	162” x 72” x 72”
TEB2000-IH	2,000	2,200	204” x 108” x 72”	TEB4000-IHB	4,000	2,200	204” x 96” x 72”

† Evaporation rates may vary depending upon the application.

Printed in U.S.A. FT212C 1/99