HERON INNOVATORS
The Clear Advantage

If you have an application for flotation . . .

Have a look at ***Suspended Air Flotation (SAF™)***
by Heron Innovators.

Bubbles rise . . .

but solids suspended in water generally don't. In flotation treatment, the trick is to make the suspended solids ride the bubbles to the surface where they can be skimmed off, leaving clarified water underneath to be discharged.

The trick is mostly in the bubbles.

There are bubbles . . .

- made by chopping large bubbles into fine bubbles with a spinning impeller (Induced Air Flotation or IAF)
- made by dissolving air in water under pressure, then releasing the pressure so the air comes out of solution as fine bubbles (Dissolved Air Flotation or DAF)
- made by inducing a vacuum near a spinning impeller, causing cavitation and releasing a string of fine bubbles
- made by a variety of other methods

All of these methods have some things in common:

- The solids are only weakly attached to the bubbles, if they are attached at all. Success depends on being able to physically entrap the bubbles within solid masses. Many bubbles never see a solid to float and are wasted.
- The bubble generating machinery is power-hungry, runs at high speed with close mechanical tolerances, and is costly to buy and especially costly to repair.
- Each square foot of flotation area is limited to a maximum of 2 - 3 gallons per minute of wastewater, and 1 - 2 pounds per hour of suspended solids (dry weight). Failure is assured if these limits are exceeded.

. . . and then there are BUBBLES!

Suspended Air™ Emulsion, 40% air by volume in micron-size bubbles with a chemically active film, takes flotation treatment a quantum leap beyond anything available on the market today.

These bubbles know all the tricks.

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Every SAF™ bubble is a working bubble.

Each coated suspended bubble binds electrostatically with polymer molecules of opposite charge on the flocculated solids, forming a much stronger bond than is possible with a plain air bubble. Much less air is necessary to float solids with SAF™. Experience with many wastewaters has shown that with SAF™, an air-to-solids percentage (weight to weight) of **1%** is sufficient for treatment for solids of practically any concentration, compared with a minimum requirement of 2% for competing technologies, rising to as much as 15% for applications with suspended solids concentrations 2,000 mg/L and higher. This translates directly into a better and better footprint advantage for SAF™ for applications with higher and higher solids concentrations.

One of the most remarkable things about SAF™ flotation is the gelatin-like consistency of the floated solids. Typically, solids floated by other technologies are "sloppy" and require additional high doses of polymer to be dewatered further. In contrast, SAF™ floated solids, with air bubbles firmly attached inside, appear "rubbery" as though high doses of polymer were added. These solids will not sink during periods when the flotation process is not operating, allowing the process to re-start automatically.

SAF™ floated this from vegetable processing wastewater - solids are 21% by weight

SAF™ is versatile and cost-effective.

Suspended Air™ Emulsion generators operate at a modest 20 psi pressure. A DAF pressurizes the recycle flow to 60 - 80 psi. Suspended Air™ Emulsion generators use standard, easily-maintained components such as air-powered double diaphragm pumps. Others use specialized, high speed components. The SAF™ process runs automatically, saving operating labor.

SAF™ Generator replacing DAF pressurization equipment - Doubled the solids capture, saved $21,000 per month

Although SAF™ requires an additional chemical, it is a non-toxic, easily-metered liquid product costing less than $0.03 per thousand gallons treated. The chemical cost is typically less than the cost of additional power to run competing systems.

SAF™ can rescue an overloaded flotation process, saving capital dollars and installation time. Complete SAF™ systems cost less than competing systems, and fit in much less space. Slow-speed gravity drainage belts for SAF™ solids dewatering are available as an option.

Our bubbles welcome your wastewater! Call today to discuss your process needs with an EHI flotation treatment specialist.

