JETSCAN
Finds the Best Defoamer Automatically






Defoamers never last long enough! As soon as anti-foam is added to a system, it begins to disappear. There are many explanations for why a defoamer becomes less effective over time. But the most cost-effective way to choose an anti-foam is to test several on the problem liquid. The faster testing can be done, the faster the best choice is found.

How about using an automated instrument to choose the best defoamer?

JETSCAN™ - AUTOMATED DEFOAMER TESTER

Based on years of foam testing experience, JETSCAN was designed to measure how efficient and persistent a defoamer is. Here is how it works:

¤ JETSCAN produces foam by directing a stream (jet) of liquid into a pool of that liquid contained in a glass tube. A video camera in the instrument measures foam volume versus time and software displays the result in real time (see Figure 1). At a user chosen time, a foam volume is stored, and the jet is stopped.

¤ Decrease in foam volume versus time is measured to determine **foam stability**. The jet is started again, and foam volume increases rapidly. At a user chosen time, anti-foam is injected into the liquid circulation loop. Up to 28 different defoamers can be loaded into the autoinjection system.

¤ With the jet still on, decrease in foam volume is recorded until it reaches a minimum. This volume decrease (in cm^3) is **knock down** or **defoamer effectiveness** (see Fig1)

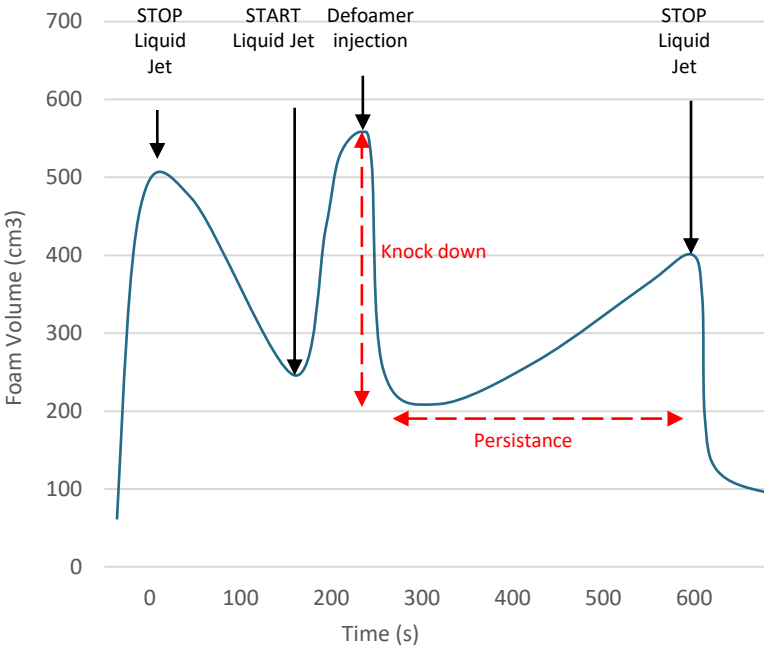


Fig1 Experiment profile Procedure

¤ **L**iquid circulation continues, and foam builds up as defoamer dissipates. At a user chosen foam volume, the jet is stopped and time (in s) from foam minimum to predetermined volume is recorded. This is **knock down time** or **defoamer persistence**.

¤ After measurement is finished, JETSCAN begins the cleaning routine chosen, rinsing with sample, or water and various mild solvents to eliminate any trace of defoamer before the next measurement is made.

JETSCAN™ - AUTOMATED DEFOAMER TESTER

¤ Software controls the entire experiment, gathers and stores data and images (see Fig2). The user establishes an experiment protocol to fix such variables as liquid volume, operating temperature (up to 90 °C), circulation flow rate, circulation times, foam volumes, antifoam chosen (from the autoinjector), antifoam volume injected, and number of injections. JETSCAN can acquire 3-4 measurements per hour, unattended, including all cleaning procedures.

¤ Using JETSCAN software, data stored from previous measurements can be overlaid for comparison and evaluation. All data can be exported to Excel, and stored images can be viewed using various Microsoft applications such as Photo or Paint.

¤ An example of testing on two different antifoam agents A and B (using the same test protocol – 3 runs each) is shown in Fig3.

Sample A has similar **knock down** to Sample B. However, **persistence** of Sample A is only half that of Sample B which is clearly the best defoamer for this liquid! Note how well the triplicates analyses overlap.

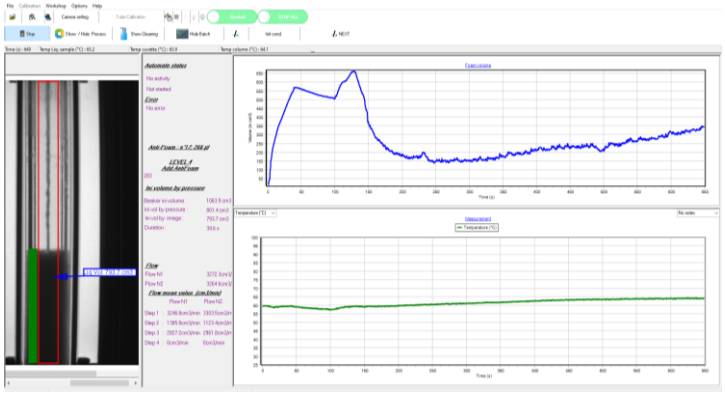


Fig2 JetScan Software Display (foam tube is image on the left)

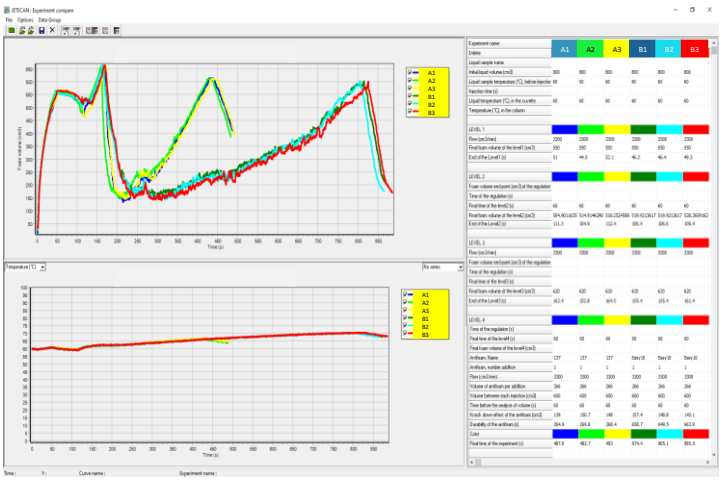


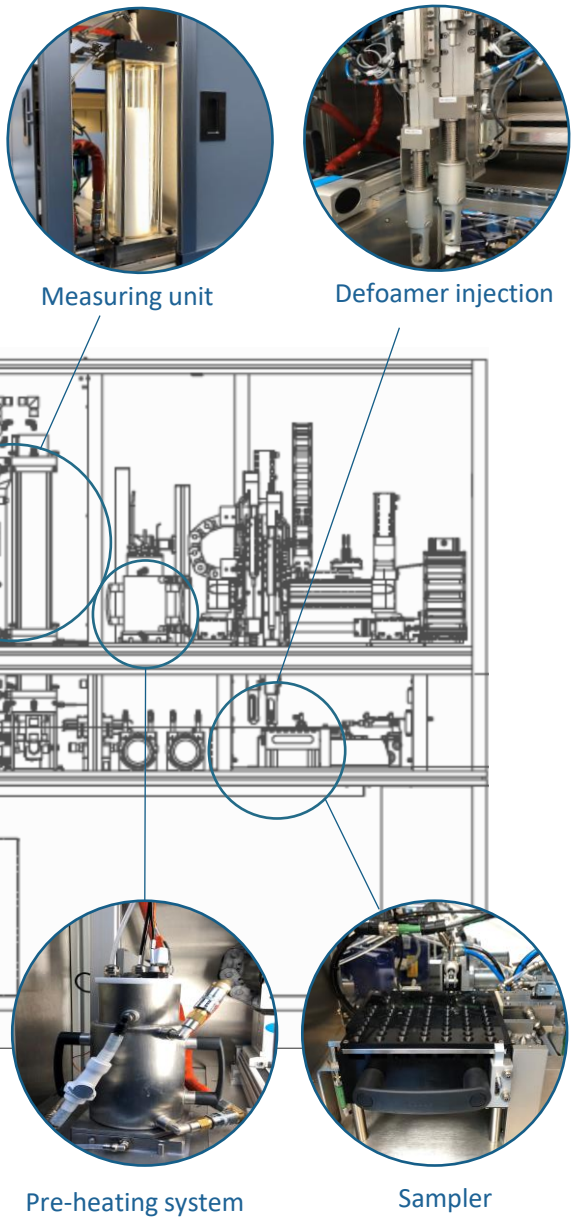
Fig3 Comparison of Two Defoamers Tested in Triplicate by JetScan (upper graph is foam volume versus time, lower graph is experiment temperature (60 ± 6 °C))

Antifoam applications

- Food and beverage production, processing and packaging
- Laundry Detergent Manufacturing
- Paper industry and bio sourced material
- Industrial wastewater treatment

JETSCAN™ - AUTOMATED DEFOAMER TESTER

JETSCAN™ has been designed to measure efficiency and persistence of anti-foam agents on foams produced by liquid jet circulation. It uses image analysis techniques combined with TECLIS software to control each measurement and acquire data.



Automated Testing

- Test protocol controlled by JETSCAN™ Software
- Automated circulation of foaming liquid
- Automated defoamer injection (up to 28 defoamers can be loaded into the autoinjector)
- Automatic cleaning

Testing reliability

- Control of foaming liquid volume controlled by image analysis and sensor, accuracy ±2 mL
- Defoamer volume resolution ±1 µL
- Flow rate, accuracy ±1 % of reading

Contact Us

✉contact@teclis-scientific.com

www.teclis-scientific.com