TRAMFLOC ANTIFOAMING AND DEFOAMING EVALUATION PROCEDURES

REQUIRED MATERIALS FOR THE CYLINDER SHAKE TEST

- One 250 ml and one 1000 ml beaker
- Variable speed electrical mixer
- Low shear mixing blade such as Jiffy Blade
- Balance
- 0.4% Kelzan water (0.4% Kelzan S solution in water with preservative)
- 100 ml graduated cylinders
- 1% solution of the Sodium salt of Dodecylbenzyl Sulfonic Acid (NaDDBSA)
- Transfer pipette or syringes
- Stopwatch

METHOD

Prepare 200g 10% defoamer dispersion in thickened water:

1. Measure in a 250 ml beaker the appropriate amount of thickened water, preferably 0.4% Kelzan S solution. (Appropriate amount: 200g minus the amount of defoamer)

2. Add the necessary amount of the defoamer concentrate so you will end up with 200g 10% solution.

3. Mix it for 5 minutes at approximately 500 rpm with a low shear mixing blade such as “Jiffy Mixer”. Please note that high shear conditions will break any defoamer emulsion causing erroneous results and excessive oiling.

Defoaming

The first part of the measurement is a test for defoaming, also known as quick knockdown. It shows how good the product is at destroying foam once it has formed.

4. Pour 45ml water in the 100 ml graduated cylinder.

5. Add 5ml of the 1% NaDDBSA to the cylinder so the resulting foaming medium will be 0.1% NADDSBA solution.

6. Shake the cylinder for 60 seconds in such a way that you perform two full shake cycles in every second, 120 shakes total. As a result the foam should reach the top of the cylinder leaving no free airspace. If the foam does not reach the top, it indicates a contaminated cylinder.

7. Remove the stopper and add one drop of the 10% defoamer to the foam using the transfer pipette or syringe, and start the stopwatch at the same time.

8. Record the time when the top of the collapsing foam reaches the 60cc mark and when it goes “flat”. “Flat” is when the foam first opens up exposing the liquid surface. Also record the foam height at 60 seconds if there is any foam.

9. Stop and zero the stopwatch after five minutes and record the foam height, if there is any foam at that time.

Antifoaming

The second part of the measurement is to determine the antifoaming properties of the specific Tramfloc compound. Antifoaming is the property of the material that if it is properly dispersed in a foaming medium it can prevent foam formation.

10. Replace the stopper in the cylinder and shake it for sixty seconds just as it is described in point 6. After the sixty seconds shake put the cylinder on the counter without delay and start the stopwatch.

11. Record the initial foam height, the time required for the foam to collapse to sixty cc, and the time to go "flat". Also record the foam height after five minutes if there is any foam at that time.

Repeat the above test two or more times if more accuracy is required. It is very practical to use the following grid to record the test results.

	#1	#2	#3	#4	#n
Method	CST	CST	CST	CST	CST
Initial Foam					
Time to 60cc					
Foam at 60"					
Foam at 5'					
Shake					
Reshake					
Time to 60cc					
Foam at 5'					

REQUIRED MATERIALS FOR THE WRIST ACTION SHAKE TEST

- A 250 ml beaker
- 8 oz round, glass, screw cap bottle
- Variable speed electrical mixer
- Low shear mixing blade such as Jiffy Blade
- Balance
- 0.4% Kelzan water (0.4% Kelzan S solution in water with preservative)
- 1% Triton X-100 solution
- Transfer pipette or syringe
- Stopwatch
- BURREL Wrist Action Shaker

METHOD

Prepare 200g 10% defoamer dispersion in thickened water.

1. Measure in a 250ml beaker the appropriate amount of thickened water, preferably 0.4% Kelzan S solution. (Appropriate amount: 200g minus the amount of defoamer.)

2. Add the necessary amount of the defoamer concentrate so you will end up with 200g 10% solution.

3. Mix it for 5 minutes at approximately 500rpm with a low shear blade such as “Jiffy Mixer”. Please note that high shear conditions will break any defoamer emulsion causing erroneous results and excessive oiling.

Antifoaming Test

4. Measure 100g of the 1% Triton X-100 into the 8oz bottle.

5. Add 1.5g of the 10% product to the bottle and close the lid.

6. Swirl the bottle around to disperse the antifoam.

7. Place the bottle in one of the clamps of the wrist action shaker. Set the shaker for maximum amplitude and shake the bottle for ten seconds.

8. After stopping the shaker record the time to “flat”. (“Flat” is when the foam first opens up exposing the liquid surface.) Also observe and record the dispersibility of the antifoam in the Triton X-100 solution.

9. Run the Wrist Action Shaker for consecutive 1, 5, 30 minutes using the same sample dispersion. Record the time needed to go “flat”.

The trade names of the above listed surfactants are registered by the mark owners and are shown as suggestions only.

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