Heinrich Frings GmbH & Co KG
Bioprocess and Chemical Technology

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E-Mail: marketing@frings.com
Internet: http://www.frings.com

Mechanical defoamer questionnaire

Fax reply form

Address

Company

Contact person

Street

City | Country | ZIP code

Telephone | Telefax

E-Mail

Process type

☐ Fermentation ☐ Gas-liquid reaction ☐ other

General description of process / of foam situation

☐ Drawing attached

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Tank dimensions

Volume (total): _____ m³

Filling level: _____ %

Diameter/height: _____ m/m

Tank head design

☐ open ☐ closed

☐ domed ☐ flat

Substance data Gas (exhaust gas flow)

Type: _____

Gas temperature: _____ °C

Exhaust gas volume flow: _____ m³/h

Density: _____ kg/m³

Substance data Liquid

Type: _____

Density: _____ kg/m³

Dyn. viscosity: _____ mPas

Suspended solids: _____

Particle size: _____ µm

Cleaning medium: _____

System information
(mandatory fields)

System pressure: _____ bar overpressure

System temperature: _____ °C

CIP/SIP conditions

Temperature: _____ °C

Pressure: _____ bar overpressure

Special requirements of material and equipment
(Alloy, sterile requirements, material certificates, Atex, GMP, CIP etc.)

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Foam analysis

Determination of foam volume flow *

Volume VF	L		
Time tF	s		
or			
Rising velocity of foam head	m/s	Bubble sizes	mm

Is foam formation constant during the process? ☐ **Yes** ☐ **No**

Determination of foam characteristics by means of self drainage**	**t_0 after 0 min**	**t_1 after 10 min**	**t_2 after 30 min**	**t_3 after 2 h**
Foam volume V_S	mL	mL	mL	mL
Liquid volume V_{LQ}	mL	mL	mL	mL
Weight of empty cylinder				g
Weight of full cylinder				g

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*Determination of foam volume flow (if possible):

For determination of the foam volume flow at the tank head, a defined volume is filled with foam from the closed tank via an open port or an open pipe. This volume V_F and the filling time t_F are written down in the chart.

If the tank diameter is known, as an alternative the rising velocity of the foam head in the tank head can be determined.

**Determination of foam characteristics:

For determination of foam drainage and the humidity of the foam, a wide-necked volumetric cylinder (minimum 250 mL total volume) is required. Firstly, the weight of the empty cylinder is determined. Then, the cylinder is filled swiftly with foam from the foaming process. The fill level of the foam V_S and of the drained liquid V_{LQ} is determined after the indicated time intervals. After the foam has totally collapsed, the liquid volume $V_{LQ, END}$ and finally the weight of the filled cylinder are determined (see Figure 1).

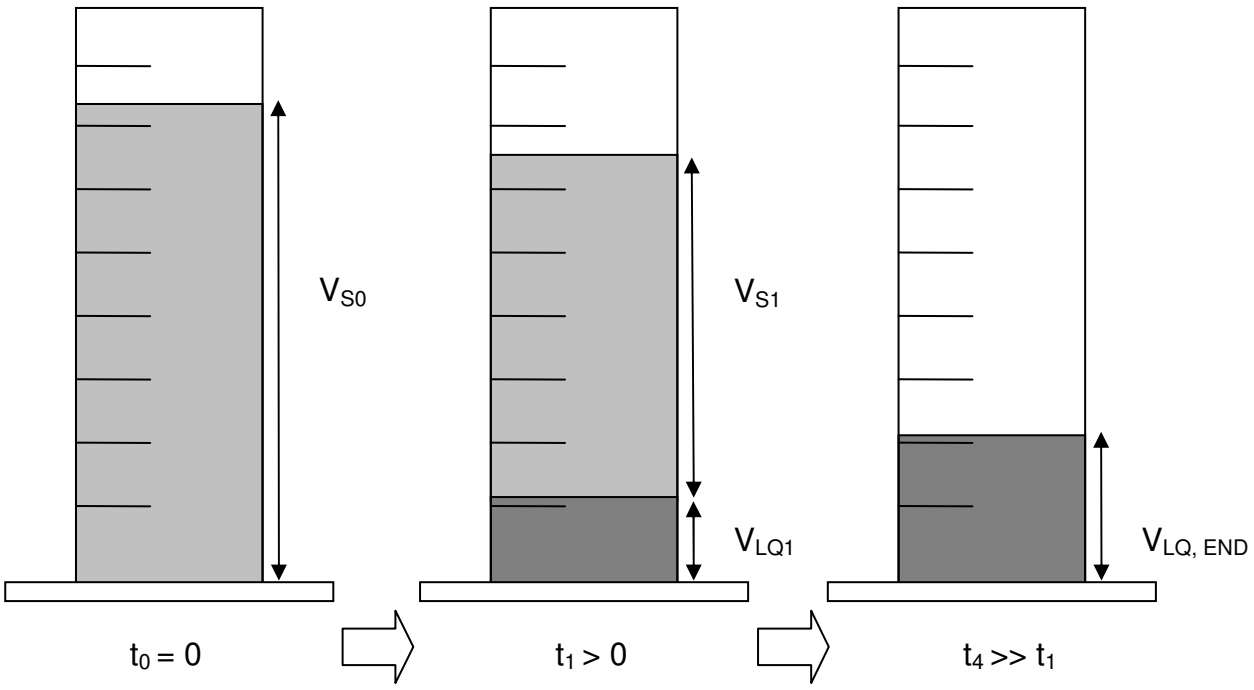

Fig. 1 Determination of foam drainage