Examination of wetting agents from Australia

CHT-Australia

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Enclosure: Excel-file, IR-files

CHT
SMART CHEMISTRY
WITH CHARACTER.

Agriculture Solutions

TASK:

Comparison of wetting agents:

- Wetter 1000
- HANSA ADD 1055

Analytic:

A) APPEARANCE:

Wetter 1000	= colourless, transparent
HANSA ADD 1055	= slightly yellowish, transparent

B) DILUTING:

Both wetting agents could be diluted to 1,00 %, 0,10 % and 0,01 % without problems. The emulsions were stable for 72 hours.

C) ACTIVE CONTENT (IR-drying, 140” C, 2 minutes)

Wetter 1000	= 83,9 %
HANSA ADD 1055	= 96,7 %

D) IR- SPECTORSCOPY

(Spectrums attached)

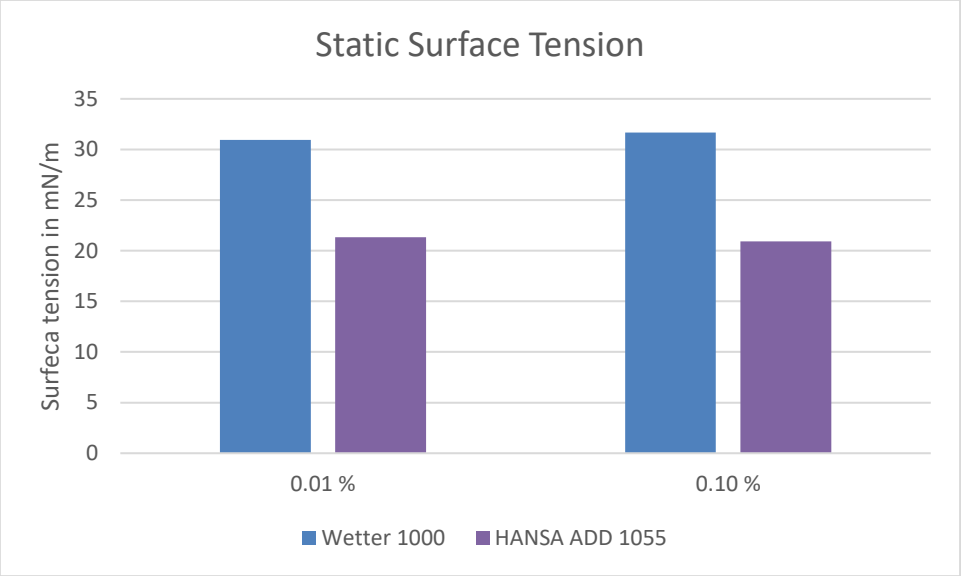
Evaluation:

Wetter 1000 : No polyether modified trisiloxan like our super wetters. Spectrum looks like nonionic tenside like NPEO.

HANSA ADD 1055 : Typical for polyether modified Trisiloxane

Performance:

A) STATIC SURFACE TENSION (Kruess K 100, Wilhelmy plate method):



Evaluation:

HANSA ADD 1055 shows already at 0.01 % concentration a good reduction of the surface tension. Wetter 1000 is worse and even at a 10 times higher concentration not able to reach the value of HANSA ADD 1055.

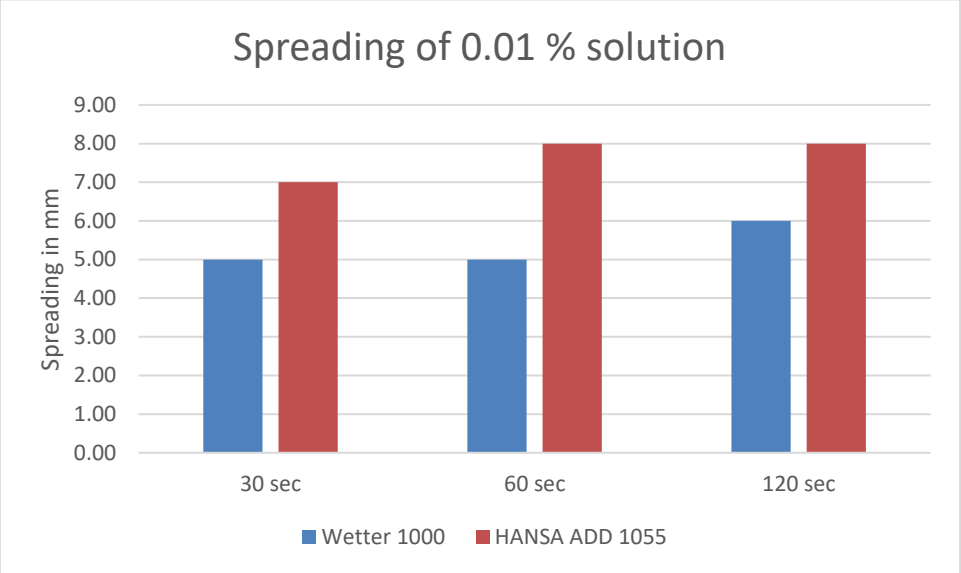
B) DYNAMIC SURFACE TENSION (Kruess BP 100)

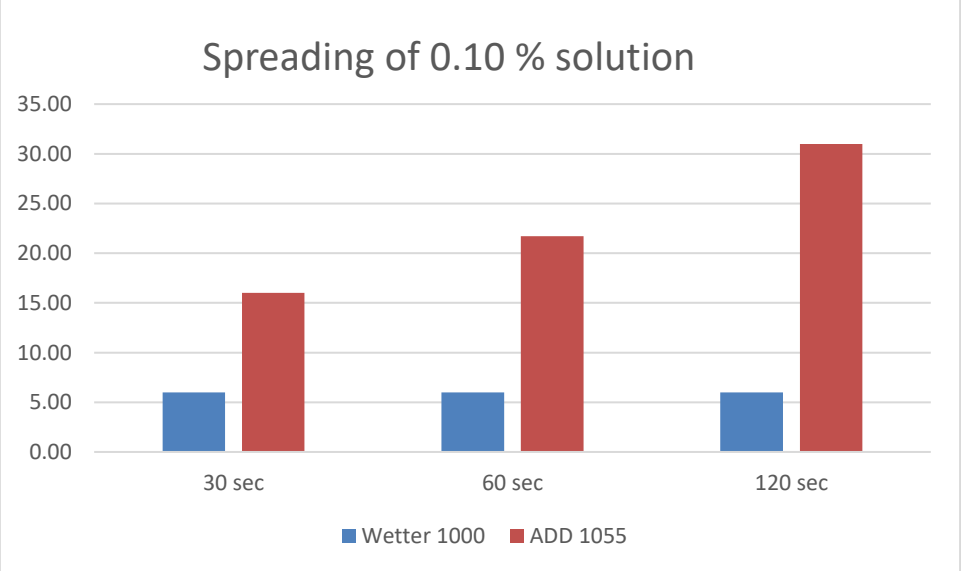
(For the origin graphs see separate Excel-file.)

Evaluation:

This measurement shows how fast a wetting agent can reduce the surface tension.
In the beginning the reduction of Surface Tension is parallel, After 250 ms (0.10 %) and 400 ms (0.01 %) HANSA ADD 1055 is faster.

C) SPREADING TEST (according to ASTM E-2044-99)



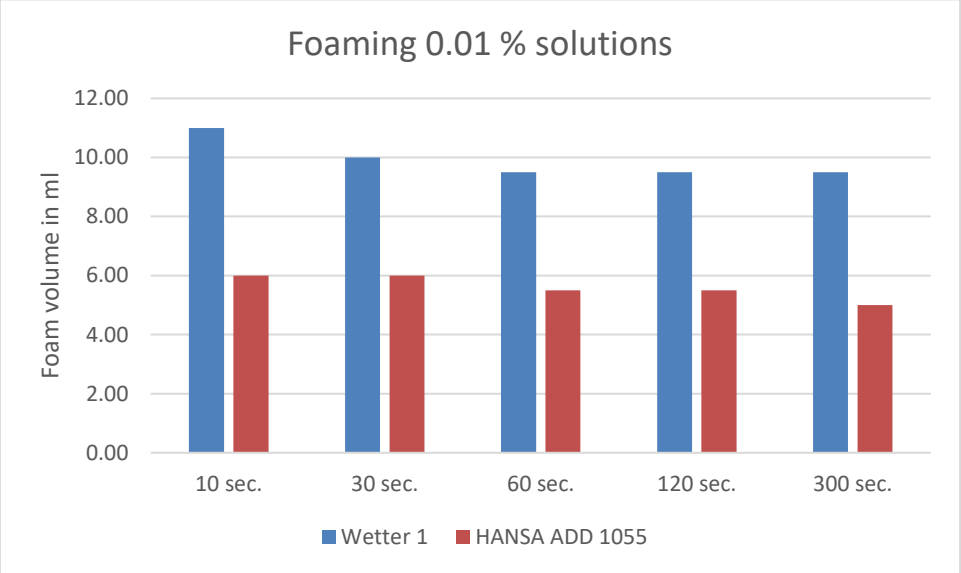


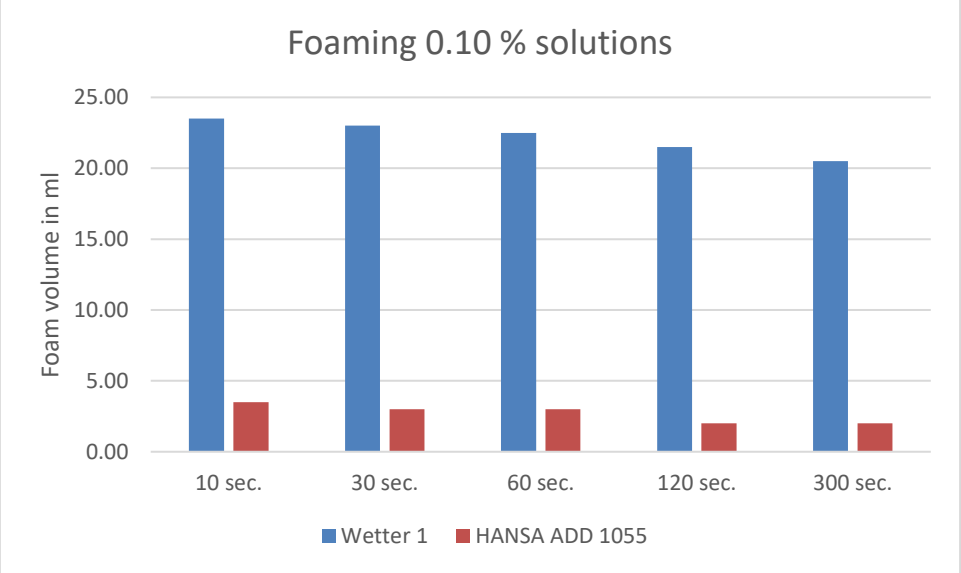
Evaluation:

HANSA ADD 1055 spreads clearly wider than Wetter 1000.

D) FOAMING

Method: Put 20 ml solution into a calibrated cylinder. Shake the cylinder 30 times hard during 30 seconds. Measure the foam volume after 10, 30, 60, 120 and 300 seconds.





Evaluation:

The foaming of Wetter 1000 is much stronger than of HANSA ADD 1055

Conclusion:

Wetter 1000 is completely different in chemistry to HANSA ADD 1055. The IR-Spectrum is very similar to Nio-tenside (NPEO).
The performance of HANSA ADD 1055 is regarding surface tension, spreading and foaming clearly better!