



Amphi[®] Sophorolipids

High-activity, multifunctional biosurfactants for use in printing ink, overprint varnish and ink jet applications.

Class Sophorolipids

TSCA Certified*



NATURAL

Vegan, non-GMO and USDA certified as 100% biobased



SUSTAINABLE

Readily biodegradable with industry-low toxicity



GENTLE

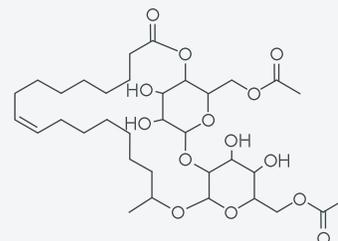
Safe and mild at level without sacrificing performance



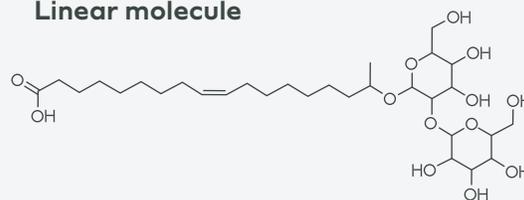
MULTIFUNCTIONAL

Non-ionic and anionic uses, can act as primary or secondary surfactants

Lactonic molecule



Linear molecule



UNMATCHED

in Performance and Sustainability

- ✓ High activity levels
- ✓ Lower usage rates
- ✓ Replace petrochemical surfactants
- ✓ Less water used in manufacturing
- ✓ Higher efficacy
- ✓ Low carbon footprint

FREE from

- ✗ Palm oil
- ✗ 1, 4-Dioxane
- ✗ Ethylene oxide
- ✗ Formaldehyde
- ✗ Proposition 65 chemicals

PLUS... Enables low VOC formulations

*Amphi[®] CL & CH TSCA pending

Applications

Amphi® biosurfactants are versatile solutions with unique properties:

- ✓ **Wide HLB 6–12**
- ✓ **Surface tension reduction**
- ✓ **Low CMC**
- ✓ **Small micelle size**
- ✓ **Non-ionic and anionic character**

In formulations, Amphi® enhances performance by acting as a:



DISPERSANT

Performed well against industry standards with TiO₂, with more organic pigments being tested



WETTING AGENT

Effective dynamic and static surface tension reduction, with new blended versions in development to enhance solubility parameters



EMULSIFIER

Lower CMC and improved stability profile compared to legacy surfactants



COALESCING AGENT

Can be used in low concentrations with no negative impact on ink properties

Formulating the Future:

Effective date: January 9, 2023

Parameter	Test	Amphi® M	Amphi® CL	Amphi® CH
Appearance	QC 017	Translucent to clear, amber liquid	Translucent to clear, amber liquid	Translucent to clear, amber liquid
Odor	QC 016	Odorless to slight acidic or sweet smell	Odorless to slight acidic or sweet smell	Odorless to slight acidic or sweet smell
Total sophorolipid content (wt%)	QC 023	≥50	≥50	≥50
Residual oleochemicals (wt%)	AC 002	≤5	≤5	≤5
pH at 0.1% in DI water	QC 005	4.0-5.5	4.0-5.0	4.5-5.5