



Biosurfactant Product Catalog

Versions: 202602

Shaanxi Deguan Biotechnology Co.,Ltd.

Catalogue

1. Industrial grade biosurfactant

Sophorolipid SLM	2
Rhamnolipid RLM	3

2. Cosmetic grade bio-glycolipids

Bio-glycolipids SLMP, SLLP	4
Bio-glycolipids RLMP	5

3. Agricultural bio-glycolipids

Agricultural bio-glycolipid ABG	6
Agricultural bio-glycolipids ABG-P, ABG-PJ	7
Agricultural bio-glycolipid ABG-S	8
Agricultural bio-glycolipids ABG-SP, ABG-SJ	9

4. Biological products for oil fields

Biological anti-blocking agent BD-I	10
Biological oil displacing agent BD-II	11

5. Ultra-Pure products

Diacetyl lactone sophorolipid SLL-D	12
Lactone-type sophorolipid SLL-M	13
Disaccharide-bilipid rhamnolipid RL-DR	14

Sophorolipid SLM

1. Basic Information

This product is a secondary metabolite of *Candida*. The main raw materials for fermentation are food-grade vegetable oil and glucose. Sophorolipid SLM is a mixture of lactone-type and acid-type sophorolipids. The product is initially processed after fermentation and has good liquid fluidity.



2. Physical & chemical indicators

SLM Physical and chemical indicators

Item	Indicators
Appearance	Light yellow to dark brown liquid
Sophorolipid content	≥350
pH(10% aqueous)	2.5-5.5
ST (10 ⁻³) , mN/m	≤45

3. Characteristics

Low surface tension, low foam, easily soluble in water (pH>5.5) and organic solvents, antibacterial, non-toxic, and biodegradable.

4. Applications

Petroleum, agriculture, environmental protection, cleaning, etc.

Rhamnolipid RLM

1. Basic Information

This product is a secondary metabolite of *Pseudomonas aeruginosa*, and the main raw material for fermentation is food-grade vegetable oil. Rhamnolipid RLM is produced through fermentation, impurity removal and concentration. The product is a mixture of rhamnolipids including multiple structural types. The product is liquid and has good fluidity.



2. Physical & chemical indicators

RLM Physical and chemical indicators

Item	Indicators
Appearance	Brown to black liquid
pH(10% aqueous)	6.0-8.0
Water solubility	Soluble
Rhamnolipid content	≥250
ST (10 ⁻³) , mN/m	≤ 35

3. Characteristics

Low surface tension, low CMC concentration, high foam, miscible with water, and biodegradable.

4. Applications

Petroleum, agriculture, breeding, environmental protection, industrial cleaning, foaming, etc.

Sophorolipid SLMP、SLLP

1. Basic Information

The purified product of sophorolipid, which removes fermentation by-products and undergoes decolorization and deodorization treatment, can be used in daily chemical direction.



2. Physical & chemical indicators

Physical and chemical indicators

Item	SLMP	SLLP
Appearance	Light yellow transparent liquid	Colorless to light yellow transparent liquid
Color number	≤7	≤7
Solid,%	≥50	≥50
pH(10% aqueous)	5.5-7.5	5.5-7.5

3. Characteristics

Low surface tension, low foam, mild, easily water-soluble, antibacterial, anti-inflammatory, non-toxic, and biodegradable.

4. Applications

Cosmetics, civil cleaning.

Cosmetic grade bio-glycolipids

Sophorolipid RLMP

1. Basic Information

Rhamnolipid fermentation broth purified product. Derived from the fermentation of natural vegetable oil, the product obtained after purification, decolorization and deodorization can be used in daily chemicals.



2. Physical & chemical indicators

RLMP Physical and chemical indicators⁴

Item	Indicators
Appearance	Colorless to light yellow transparent liquid
Color number	≤2
Solid,%	≥40
pH(10% aqueous)	6.5-7.5

3. Characteristics

Low surface tension, low CMC, high foam, easily water-soluble, anti-bacterial, anti-inflammatory, non-toxic, and biodegradable.

4. Applications

Cosmetics, civil cleaning.

Agricultural bio-glycolipid ABG

1. Basic Information

Agricultural bioglycolipids are glycolipid metabolites produced by specific microorganisms through fermentation technology. ABG is a liquid model, and the active ingredient is rhamnolipid. Agricultural bioglycolipids are a new type of biological additive that can be used in fertilizers, pesticides and functional agricultural products.



2. Physical & chemical indicators

ABG Physical and chemical indicators

Item	Indicators
Appearance	Brown to black liquid
pH(10% aqueous)	6.0- 8.0
Water solubility	Soluble
Glycolipid content ,g/L	≥250

3. Characteristics

Solubilizing, synergizing, growth promoting, bacteriostatic, biodegradable.

4. Applications

3. Fertilizers and pesticides are used as additives for reducing dosage and increasing efficiency, seed cultivation, soil improvement, plant nutrition, plant protection, fruit and vegetable preservation, etc.

Agricultural bio-glycolipid ABG-P,ABG-PJ

1.Basic Information

Agricultural bioglycolipids ABG-P (without bacterial cells) and ABP-PJ (containing bacterial cells) are produced by fermentation of specific microorganisms, preliminary treatment, and drying. The active ingredient is rhamnolipid. Agricultural bioglycolipids are a new type of biological additive that can be used in fertilizers, pesticides and functional agricultural products.



2.Physical & chemical indicators

ABG-P,ABG-PJ Physical and chemical indicators

Item	Indicators	
	ABG-P	ABG-PJ
Appearance	White to yellow powder	White to yellow powder
pH(10% aqueous)	7.0-9.0	7.0-9.0
Water solubility	Soluble	Soluble(suspension or small amount of precipitate)
Glycolipid content,g/kg	200± 20	200± 20
Aqueous,%	≤8	≤8

3.Characteristics

Solubilizing, synergizing, growth promoting, bacteriostatic, biodegradable.

4.Applications

Fertilizers and pesticides are used as additives for reducing dosage and increasing efficiency, seed cultivation, soil improvement, plant nutrition, plant protection, fruit and vegetable preservation, etc.

Agricultural bio-glycolipid ABG-S

1. Basic Information

Agricultural bioglycolipid ABG-S is purified from sophorolipid fermentation liquid. The product is liquid, flowable and has good water solubility.



2. Physical & chemical indicators

ABG-S Physical and chemical indicators

Item	Indicators
Appearance	Brown liquid
pH(10% aqueous)	6.0-8.0
Water solubility	Soluble
Solid, %	≥40

3. Characteristics

Solubilizing, synergizing, emulsifying, bacteriostatic, biodegradable.

4. Applications

Pesticide emulsification and dosage reduction synergistic additives.

Agricultural bio-glycolipid ABG-SP,ABG-SJ

1.Basic Information

Agricultural bioglycolipids ABG-SP (without bacterial cells) and ABP-SJ (containing bacterial cells) are produced by fermentation of specific microorganisms, preliminary treatment, and drying. The active ingredient is sophorolipid. Agricultural bioglycolipids are a new type of biological additive that can be used in fertilizers, pesticides and functional agricultural products.



2.Physical & chemical indicators

ABG-SP,ABG-SJ Physical and chemical indicators		
Item	Indicators	
	ABG-SP	ABG-SJ
Appearance	White to yellow powder	White to yellow powder
pH(10% aqueous)	7.0-10.0	7.0-10.0
Water solubility	Soluble	Soluble(suspension or small amount of precipitate)
Glycolipid content,g/kg	200± 20	200± 20
Aqueous, %	≤8	≤8

3.Characteristics

Solubilizing, synergizing, growth promoting, bacteriostatic, biodegradable.

4.Applications

Fertilizers, pesticide reduction and synergy additives, seed cultivation, soil improvement, plant nutrition, plant protection, fruit and vegetable

Biological anti-blocking agent BD-I

1. Basic Information

Biological deblocking agent BD-I is a biological deblocking product for oil fields produced with biosurfactant as the main agent.



2. Physical & chemical indicators

BD-I Physical and chemical indicators

Item	Indicators
Appearance	Light yellow to brown liquid
Viscosity (room temperature) ,mPa·s	≤500
pH(0.5% aqueous)	6-8
ST (10 ⁻³) mN/m	≤40
Solid,%	≥25

3. Characteristics

It has low operating cost, protects the reservoir, is green and environmentally friendly, and does not affect downstream processes.

4. Applications

- 1) Dissolve organic matter blockages such as colloids, asphaltene, and wax in the near-wellbore area.
- 2) Improve rock surface wettability, reduce oil-water interfacial tension, and increase permeability.

Biological oil displacing agent BD-II

1. Basic Information

Biological oil-displacing agent BD-II is a biological oil-displacing product for oil fields produced with biosurfactant as the main agent.



2. Physical & chemical indicators

BD-II Physical and chemical indicators

Item	Indicators
Appearance	Light yellow to brown liquid
Viscosity (room temperature) ,mPa·s	≤500
pH(0.5% aqueous)	5-7
ST (10^{-3}) mN/m	≤40
Solid,%	≥25

3. Characteristics

It has good water solubility and low interfacial tension; emulsifies crude oil to improve formation wettability; increases swept volume; is resistant to temperature and salt, and has a wide range of pH values; non-toxic, harmless, 100% biodegradable, and will not affect the reservoir and environmental pollution.

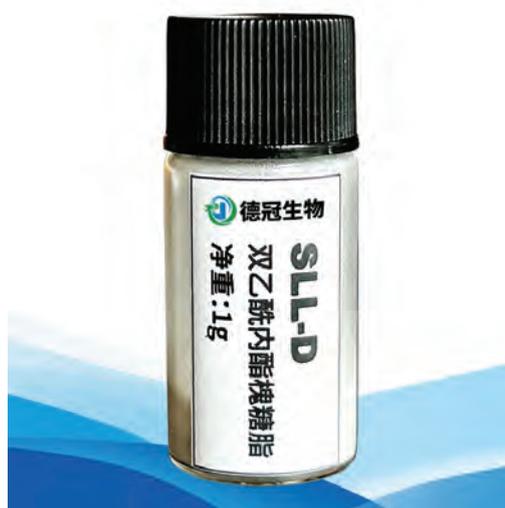
4. Applications

- 1) Suitable for tertiary oil recovery in oil fields.
- 2) Suitable for conventional oil fields and low-permeability and

Diacetyl lactone sophorolipid SLL-D

1. Basic Information

Diacetyl lactone sophorolipid (SLL-D) is a white powder obtained by fermentation of yeast and refined purification. Its main component is sophorolipid containing two acetyl groups. Odorless, non-hygroscopic, soluble in ethanol, ethyl acetate; easily soluble in chloroform, methylene chloride, methanol, etc. Microscopically, it shows needle-like crystals.



2. Physical & chemical indicators

SLL-D Physical and chemical indicators

Item	Indicators
Appearance	White to light yellow powder
Color number, (5% methanol solution)	≤ 3
Active substance content, %	≥98
Aqueous, %	≤ 2
Solubility	Soluble *

*Recommended solvents: methanol, ethanol, etc. (product is not soluble in water).

3. Main molecular structure

SLL-D: Classification of major molecular structures	Total percentage	Relative proportions of major structures ≈	
Monoacetyl Lactone Sophorolipid	≤1%	L,C18:1,1AC	4
		L,C16:0,1AC	1
Diacetyl Lactone Sophorolipid	≥99%	L,C18:1,2AC	20
		L,C16:0,2AC	11
		L,C18:0,2AC	10
		L,C18:2,2AC	4
		L,C16:1,2AC	2
		L,C17:0,2AC	1

4. Applications

Antibacterial, anti-inflammatory, antiviral, anti-tumor and other medical and pharmaceutical applications.

Lactone-type sophorolipid SLL-M

1. Basic Information

Lactone-type sophorolipid (SLL-M) is a white powder obtained by fermentation of yeast and refined purification. Its main component is mixed lactone sophorolipid. Odorless, non-hygroscopic, soluble in ethanol, ethyl acetate; easily soluble in chloroform, methylene chloride, methanol, etc. Microscopically, it shows needle-like crystals.



2. Physical & chemical indicators

SLL-M Physical and chemical indicators

Item	Indicators
Appearance	White to light yellow powder
Color number, (5% methanol solution)	≤ 3
Active substance content, %	≥ 95
Aqueous, %	≤ 5
Solubility	Soluble *

*Recommended solvents: methanol, ethanol, etc. (product is not soluble in water).

3. Main molecular structure

SLL-M: Classification of major molecular structures	Total percentage	Percentage of major structures among them	
Acid Sophorolipid	≤ 2%	--	
Monoacetyl Lactone Sophorolipid	≈ 15-25%	L,C18:1,1AC	≈ 10-20%
Diacetyl Lactone Sophorolipid	≈ 75-85%	L,C18:1,2AC	≈ 50-70%
		L,C18:2,2AC	≈ 10-20%
		L,C18:0,2AC	≈ 4-6%
		L,C16:0,2AC	≈ 2-5%

4. Applications

Antibacterial, anti-inflammatory, antiviral, anti-tumor and other medical and pharmaceutical applications.

Disaccharide-bilipid rhamnolipid RL-DR

1. Basic Information

Disaccharide disaccharide rhamnolipid (RL-DR) is a white to slightly yellow powder obtained by fermentation of *Pseudomonas aeruginosa* and refined purification. Its main component is disaccharide-bilipid type rhamnolipid.



2. Physical & chemical indicators

RL-DR Physical and chemical indicators

Item	Indicators
Appearance	Light yellow to white powder
Color number, (5% methanol solution)	≤ 3
Active substance content, %	≥ 95
Aqueous, %	≤ 5
Solubility	Soluble *

*Recommended solvents: methanol, ethanol, etc. (product is not soluble in water).

3. Main molecular structure

RL-DR: Classification of major molecular structures	Total percentage	Relative proportions of major structures ≈	
Disaccharide bilipid rhamnolipid content	≥ 82%	Rha-Rha-C10-C10	8.6
		Rha-Rha-C12-C10/ Rha-Rha-C10-C12	3.6
		Rha-Rha-C10-C12:1	1.7
		Rha-Rha-C10-C8/ Rha-Rha-C8-C10	1
Monosaccharide bilipid rhamnolipid content	≤ 15%	Rha-C10-C10	1.5

4. Applications

Antibacterial, anti-inflammatory, antiviral, anti-tumor and other medical and pharmaceutical applications.