innospec

EMULSION POLYMERS

Sulphosuccinates by Innospec

INNOSPEC is one of the largest suppliers of Sulphosuccin(am)ate surfactants that are used in a wide range of industries from emulsion polymer (EP) synthesis, paints, over print varnishes (OPV), inks, adhesives, plastics and many more.

Contents

Discover our ingredients

Diester Sulphosuccinate

Used in a wide variety of emulsion and suspension polymerizations as a primary or co-emulsifier, it can produce latexes with **low levels of coagulum**, **very low particle size** and **narrow distribution**. As a **post additive**, it is a very effective wetting agent and it **lowers surface tension**, **improving flow** and **leveling characteristics**.

INNOSPEC offers a wide range of Diester Sulphosuccinate:

- Varying alkyl chains of sulphosuccinate;
- Available in wide range of solvents;
- High flash point Sulphosuccinate allowing for non-regulated storage;
- Dioctyl Sulphosuccinates with low levels of residual Diethylhexyl Maleate (DEHM) for overprint varnish.

Surface tension
of Diester Sulphosuccinate

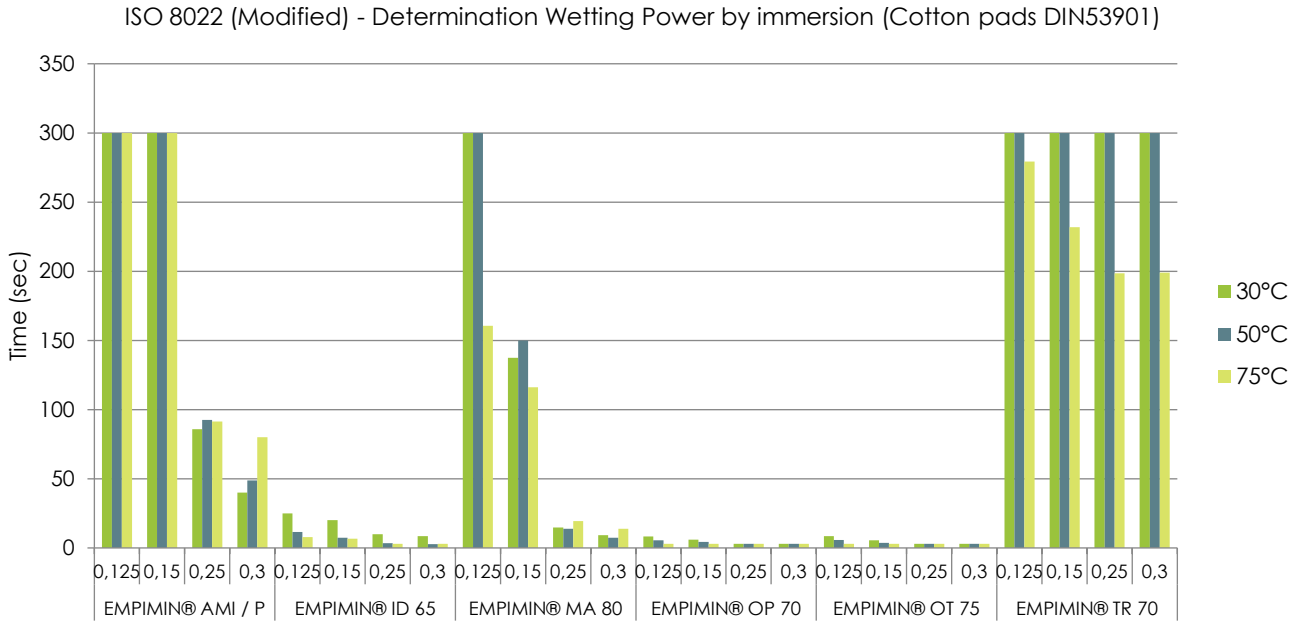
Sulphosuccinates are very effective **wetting agents**. Their excellent surface tension reduction qualities and broad **food contact compliance** make them commonly used substrate wetting agents in the **printing and packaging** industries.

PRODUCTS	Concentration, % (in water, at 20°C temperature)				
	0.001	0.01	0.1	0.5	1
EMPIMIN® MA 80	67	54	43	34	29
EMPIMIN® ID 65 (dev)	41	36	29	27	27
EMPIMIN® TR 70 (dev)	58	52	37	32	31
EMPIMIN® OP 70	58	48	36	30	28
EMPIMIN® OT 75	58	48	36	30	28

Values in dynes/cm

Wetting time
of Diester Sulphosuccinate

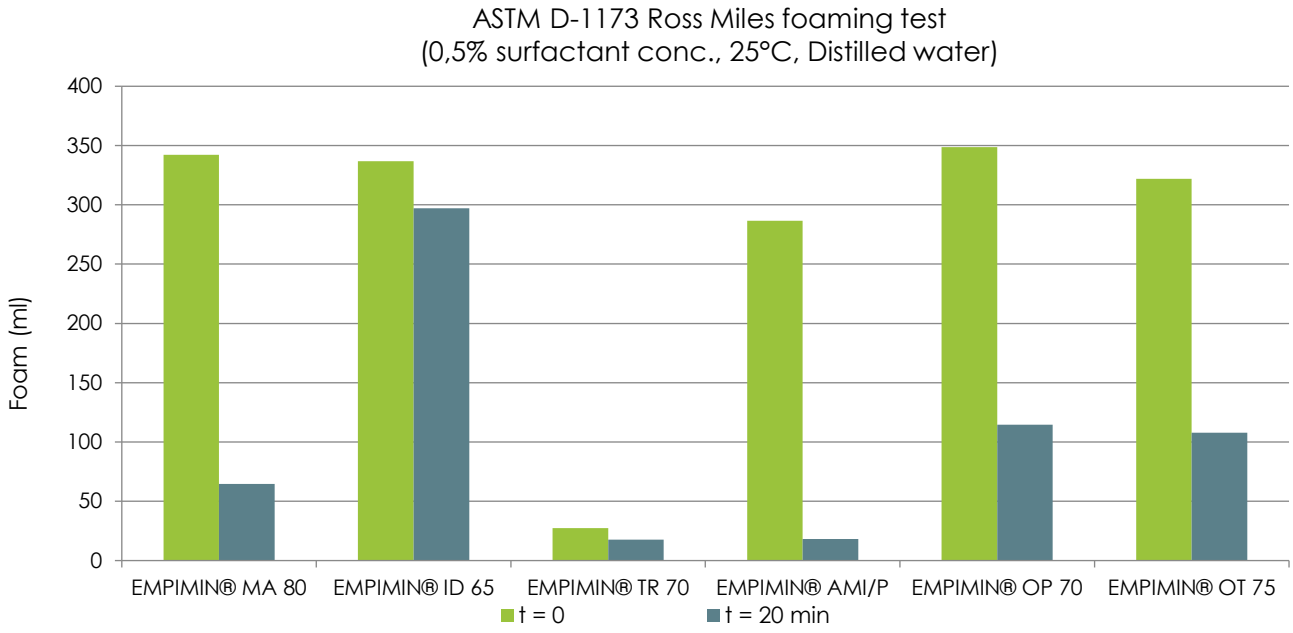
Dialkyl Sulphosuccinates are a versatile surfactant used in many applications where they bring different properties one of which is wetting. This chart helps you select the correct product if you are using the Sulphosuccinate as a wetting agent in an aqueous environment where the lowest value indicates the strongest wetting agent.



Various Diester Sulphosuccinate products were tested for wetting power as per ISO 8022 (modified) at different temperatures and concentrations.
The plot shows the wetting power of standard cotton pads in the test.

Foam tendency
of Diester Sulphosuccinate

In many applications foam is a property that is desired however in industrial application foam it is often not wanted. In aqueous solution many of the Dialkyl Sulphosuccinates foam depending on your application you may be required either a mechanical or chemical method to keep the foam under control.



The plot shows typical foaming behavior of various Diester Sulphosuccinate products immediately after agitation and after 20mins when tested in Ross Miles foaming test as per ASTM D-1173 (0.5% conc @25°C).

Dioctyl Sulphosuccinate for overprint varnish

Printing and overprint varnishes are applied to a wide variety of substrates, and the range of substrate wetting additives used is just as diverse. Sulphosuccinate surfactants have been used in waterborne formulations to ensure adequate wettability by the overprint varnish of the fresh offset ink.
Innospec offers for such applications, with two OPV grades. These products offer very low residual diethyl hexyl maleate (DEHM) in comparison to typical Dioctyl Sulfosuccinate (DOSS) surfactants.

EMPIMIN®	Form	Flash Point, °C (Pensky Martens Closed Cup)
OP70 / OPV	70% solution in propylene glycol and water	>100
OT75 / OPV	75% solution in ethanol and water	27

Diester Sulphosuccinate range

EMPIMIN®	General description	Solvent	Origins	Emulsifier					Wetting agent and other applications	Usage level, %	Key properties
				All Acrylic, Styrene/ acrylic polymer	Vinyl acrylic, Vinyl VEOVA, VAE polymer	Styrene Butadiene latex	PVC and ABS emulsion	PSA latex			
AMI/P	Sodium Diamyl Sulphosuccinate	Propylene glycol	Europe						•	0.5 - 2.0	Wetting and dispersing agent in high concentration electrolytes, used in electroplating, leather coating, pigment and hydrophilic resin.
ID 65	Sodium Diisodecyl Sulphosuccinate	Isopropanol/ water	Europe	•	•	•	•	•	•	0.5 - 1.0	Primary or Co-emulsifier to exhibit emulsifying and stabilizing properties in polymer dispersion. A reduced foaming tendency and strong wetting properties are further enhanced.
MA 80	Sodium Dihexyl Sulphosuccinate	Ethanol/ water	Europe	•	•	•	•	•	•	1.0 - 2.0	Primary or co-emulsifier to provide a complete conversion and coagulum free latex with mechanical stability. Imparts good adhesion on porous substrate.
OIP	Sodium Dioctyl Sulphosuccinate	Isopropanol/ water	Europe	•	•	•	•	•	•	0.5 - 1.5	Co-emulsifier to produce latex with low levels of coagulum, very low particles size and a narrow distribution. As a post addition, it lowers surface tension, improving flow and levelling characteristics.
OP 70	Sodium Dioctyl Sulphosuccinate	Propylene glycol	Europe						•	0.5 - 1.5	High flash point version of EMPIMIN® OT75.
OP 70/ OPV	Sodium Dioctyl Sulphosuccinate	Propylene glycol	Europe						•	0.2 - 1.0	Wetting agent for used in Over Print Varnish application (OPV).
OT	Sodium Dioctyl Sulphosuccinate	Ethanol/ water	Europe					•	•	0.5 - 1.5	Co-emulsifier to produce latex with low levels of coagulum, very low particles size and a narrow distribution. As a post addition, it lowers surface tension, improving flow and levelling characteristics.
OT 75	Sodium Dioctyl Sulphosuccinate	Ethanol/ water	Europe	•	•	•	•	•	•	0.5 - 1.5	
OT 75/ OPV	Sodium Dioctyl Sulphosuccinate	Ethanol/ water	Europe						•	0.2 - 1.0	Wetting agent for used in Over Print Varnish application (OPV).
TR 70	Sodium Diisotridecyl Sulphosuccinate	Ethanol/ water	Europe				•		•	0.5 - 1.0	It modifies surface active properties which can make the finished film water resistant. It has an excellent synergy with primary emulsifiers to generate and stabilize fine dispersions as well as improving emulsion stability.

Diester Sulphosuccinate range

EMPIMIN®	Typical Properties							Food Contact regulation										
	Appearance at 25°C	Active content, %	Solid content, %	pH	Flash point (PMCC),°C	CMC, % by wt	Surface tension at CMC, dynes/cm	US FDA registration, chapter 21 CFR										German BFR
								175.105	175.300	175.320	176.170	176.180	176.210	177.1200	177.1210	177.2800	178.3120	178.3400	
AMI/P	Clear liquid	54 - 56	-	5 - 7 (5% aq)	> 100	1,8	28											•	TBD
ID 65	Clear liquid	64 - 68	-	6 - 8 (10% IPA/water)	25	0,03	27	•										•	II, XIV, XXXIV
MA 80	Clear liquid	-	79 - 81	5 - 7 (10% aq)	36	1,4	27	•			•	•			•			•	IV, XXXIV
OIP	Clear liquid	64 - 67	-	6.5 - 7.5 (5%)	30	0,12	26	•	•	•	•		•	•		•	•	•	IV, XXXIV
OP 70	Clear liquid	70 - 74	-	5 - 7 (5% aq)	> 100	0,12	27	•	•	•	•		•	•		•	•	•	IV, XXXIV
OP 70 / OPV	Clear liquid	70 - 74	-	5 - 7 (5% aq)	> 100	0,12	27	•	•	•	•		•	•		•	•	•	IV, XXXIV
OT	Clear liquid	60 - 62	-	5 - 7 (3%)	25	0,12	26	•	•	•	•		•	•		•	•	•	IV, XXXIV
OT 75	Clear liquid	71 - 75	-	5 - 7 (1%)	29	0,12	26	•	•	•	•		•	•		•	•	•	IV, XXXIV
OT 75/ OPV	Clear liquid	71 - 75	-	5 - 7 (1%)	29	0,12	26	•	•	•	•		•	•		•	•	•	IV, XXXIV
TR 70	Clear liquid	68 - 72	-	6 - 8 (10% IPA/water)	29	0,00054	27	•				•						•	TBD

Diester Sulphosuccinate range

EMPIMIN®	General description	Solvent	Origins	Emulsifier					Wetting agent and other applications	Usage level, %	Key properties
				All Acrylic, Styrene/ acrylic polymer	Vinyl acrylic, Vinyl VEOVA, VAE polymer	Styrene Butadiene latex	PVC and ABS emulsion	PSA latex			
MA80/I	Sodium Dihexyl Sulphosuccinate	Isopropanol/ water	US	•	•	•	•	•	•	1.0 - 2.0	Primary or co-emulsifier to provide a complete conversion and coagulum free latex with mechanical stability. Imparts good adhesion on porous substrate.
691-40	Sodium Dicyclohexyl Sulphosuccinate	Water	US			•			•	0.5 - 2.0	Co-emulsifer to provide excellent water resistance and adhesion of latex with good mechanical stability and high filler loading capacity.
SC-75	Sodium Dioctyl Sulphosuccinate	Isopropanol/ water	US	•	•	•	•	•	•	0.5 - 1.5	Co-emulsifier to produce latex with low levels of coagulum, very low particles size and a narrow distribution. As a post addition, it lowers surface tension, improving flow and levelling characteristics.
SC-40	Sodium Dioctyl Sulphosuccinate	Isopropanol/ water	US	•	•	•	•	•	•	0.5 - 1.5	
SC-85P	Sodium Dioctyl Sulphosuccinate	Propylene glycol	US	•	•	•	•	•	•	0.5 - 1.5	High active wetting and penetrating agent.

Diester Sulphosuccinate range

EMPIMIN®	Typical Properties							Food Contact regulation										
	Appearance at 25°C	Active content, %	Solid content, %	pH	Flash point (PMCC), °C	CMC, % by wt	Surface tension at CMC, dynes/cm	US FDA registration, chapter 21 CFR										German BFR
								175.105	175.300	175.320	176.170	176.180	176.210	177.1200	177.1210	177.2800	178.3120	178.3400	
MA80/I	Clear liquid	-	79 - 81	4.5 - 5.5 (as is)	36	1,5	28	•			•	•			•			•	TBD
691-40	Soft paste	-	39 - 41	5 - 6 (as is)	> 200	3	38											•	TBD
SC-75	Clear liquid	-	74 - 76	4 - 6.5 (1%)	27	0,12	26	•	•	•	•		•	•		•	•	•	IV, XXXIV
SC-40	Clear liquid	-	40 - 43	4 - 6 (1%)	27	0,12	26												
SC-85P	Clear liquid	81 - 86	-	4 - 6 (1%)	> 93	0,12	27												

Monoester Sulphosuccinate

EMPIMIN® PCA 507 is Disodium Alkyl Ethoxy Sulphosuccinate. It is an excellent primary emulsifier for emulsion polymerization of acrylic, vinyl-acrylic, styrene-acrylic and EVA systems. Its unique structure imparts both steric and charge stabilization leading to the latex system with:

- **Low particle size** at low usage levels;
- **High solids** at manageable viscosity;
- **Good mechanical** and **electrolyte stability** and **low coagulum** levels;
- **Good resistance** to **moisture** and **yellowing**.

Physical properties EMPIMIN® PCA 507	
Form	31% solution in water
Flash Point, °C (Pensky Martens Closed Cup)	> 100
CMC, % wt	0.1
Surface tension at 20°C (0.1% solution in water)	29

Sulphosuccinamate

EMPIMIN® MK/B is Disodium N-cetostearyl Sulphosuccinamate. It has many applications as a foaming agent and emulsifier, particularly in specialty industries, where its characteristics can be fruitfully employed. The specific applications of EMPIMIN® MK/B include:

- the manufacturing of polymeric compounds by emulsion polymerization, where the product acts as the emulsifier;
- a component of concrete air entraining and mortar plasticizer admixtures;
- foaming agent for rubber latex compounds. It is particularly useful in the manufacture of latex foams applied to the back of tufted carpets by no-gel techniques, using compounds based on natural latexes, synthetic non-carboxylated styrene-butadiene latexes and mixtures of both.

Physical properties EMPIMIN® MK/B*	
Form (aqueous suspension)	32% solid
Flash Point, °C (Pensky Martens Closed Cup)	Not applicable
Density g/cm^3	1.05
Surface tension at 20°C (0.1% solution in water) mN/m	42.2 (lit)

***REACH registered**

Monoester Sulphosuccinate & Sulphosuccinamate

EMPIMIN®	General description	Solvent	Origins	Emulsifier					Wetting agent and other applications	Usage level, %	Key properties
				All Acrylic, Styrene/ acrylic polymer	Vinyl acrylic, Vinyl VEOVA, VAE polymer	Styrene Butadiene latex	PVC and ABS emulsion	PSA latex			
PCA 507	Disodium Polyethyleneglycol Alkyl (C10-C12) Ether Sulfosuccinate	Water	Europe	•	•					1.0 - 2.0	Generates small to intermediate particle size emulsions with good electrolyte and mechanical stability.
MK/B	Disodium N-cetostearyl Sulfosuccinimate	Water	Europe						•	1.0 - 2.0	Particularly useful in the manufacture of latex foams applied to the back of tufted carpets by non-gel techniques using compounds based on natural latexes, synthetic non-carboxylated styrene-butadiene latexes and mixtures of both.

EMPIMIN®	Typical Properties									Food Contact regulation											
	Appearance at 25°C	Active content, %	Solid content, %	pH	Flash point (PMCC), °C	Acid value	Iodine value	CMC, % by wt	Surface tension at CMC, dynes/cm	US FDA registration, chapter 21 CFR											German BFR
										175.105	175.300	175.320	176.170	176.180	176.210	177.1200	177.1210	177.2800	178.3120	178.3400	
PCA 507	Clear liquid	29 - 31	-	5 - 6 (5% aq)	> 200	-	-	0,012	29	•										•	TBD
MK/B	Opaque liquid/ paste	23.0 min.	32.0 min.	6.5 – 9.5 (5% aq.soln)	> 200	-	-	-	-												

Sustainability at Innospec

RSPO-1106327

As a member of the **Roundtable on Sustainable Palm Oil (RSPO)** since 2013, we have a long-term commitment to the responsible sourcing of palm-based raw materials. Our **Sustainable Sourcing of Palm Oil and Palm Kernel Oil Derivatives Policy** defines our commitments and the specific steps we are taking towards ensuring that our products are produced only from sustainable palm sources that comply with the **NDPE (no Deforestation, no Peat, no Exploitation)** principles. All our facilities that handle palm-based materials are RSPO mass balance (MB) supply chain certified. We are therefore able to supply our customers with RSPO MB certified products on request. We continue to support and encourage the sale of RSPO certified products to our customers.

We have been members of **Action for Sustainable Derivatives (ASD)** since 2020. The collaborative initiative aims to use a harmonized approach to supply chain transparency, risk monitoring and engagement efforts to improve practices. It is facilitated by **Business for Social Responsibility (BSR) and Transitions**, two organizations with expertise in the field of supply chain sustainability. With 31 member companies, the industry led group brings together like-minded companies to collectively tackle supply chain issues around palm oil and palm kernel oil derivatives and uphold the NDPE principles, respect human rights and support local livelihoods.

ASD
ACTION FOR SUSTAINABLE DERIVATIVES

GOLD | Top 5%
ecovadis
Sustainability Rating
MAY 2024

We have been awarded the **EcoVadis Gold Medal** for our sustainability management system and performance. Achieving Gold puts Innospec in the top 7% of all companies rated in our sector globally. EcoVadis is a **Corporate Social Responsibility (CSR)** platform for business sustainability assessment. It independently evaluates and benchmarks the sustainability performance of over 100,000 companies in 175 different countries and 200 industries, for their environmental, labor, fair business practices and sustainable procurement.

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