When compliance meets performance

DOWSIL™ 8024 Food Contact Release Emulsion

DOWSIL™

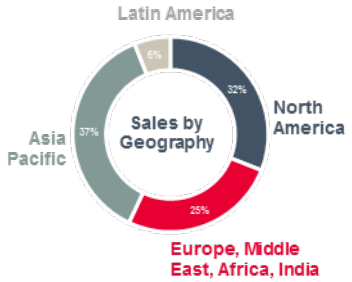
silicones by DOW

This is Dow

2019 NET SALES	EMPLOYEES	MANUFACTURING SITES	GLOBAL REACH
$43B	~36,500	109 sites	31 countries in which Dow manufactures products

Dow Consumer Solutions

2019 NET SALES	EMPLOYEES	MANUFACTURING SITES	GLOBAL REACH
$5.4B	~7,000	21 sites	12 countries in which Dow manufactures products



Innovation & manufacturing footprint across North America, Latin America, Europe and Asia

12 R&D locations

Broad portfolio of chemistries with high value innovation pipeline

Largest global silicones player[1] with 75+ years of industry leadership

Note: All data as of December 31, 2019

[1]*Largest global silicones player, based on annual sales*

DELIVERING A WINNING CUSTOMER EXPERIENCE

Easy

DOW DESIGNS SERVICES TO MEET THE EVOLVING NEEDS OF CUSTOMERS, so interactions are simple, intuitive and effective.

- Customer-focused **Dow.com** features an expanded e-commerce platform enabling easy product selection, sampling and purchase of select products
- The annual **Customer Experience (CX) survey** captures feedback from direct customers and distributors to help identify areas for improvement

Enjoyable

DOW SHARES OUR CUSTOMERS' PASSION FOR INNOVATION with an openness and agility that makes working with our people a pleasure.

- Customers collaboratively innovate with us at our new **Inspiration Studio** in Seneffe, Belgium, where Dow's materials science technologies are on display all in one place

Effective

DOW EARNS OUR CUSTOMERS' TRUST with consistent quality and supply while partnering to improve their business and the planet.

- **Regional Customer Care Centers** get to the root of customer problems and provide real-time analytics to improve CX
- Partnering with customers on new recycling technologies and resource conservation as part of **advancing a circular economy**

PROVEN, RELIABLE, SAFE AND EFFECTIVE SOLUTIONS FOR INDUSTRIAL AND CHEMICAL PROCESSING

- Foam control agents
- Coating resins & binders
- Coating & ink additives
- Surface & material modifiers
- Processing aids
- Mold release agents
- Surfactants
- Formulation intermediates
- Silanes


Pulp Processing


PU Additives


Coatings


Food & Beverages


Plastic Additives


Textile Treatment


Agrochemicals


Automotive Care


Leather Finishing

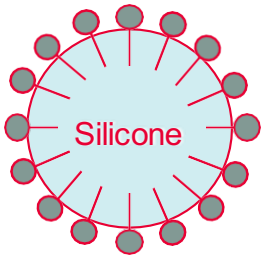
Optimized manufacturing ***process***

Enhanced product ***properties***

Improved ***sustainability*** performance

CONTENT

- Market trends
- Silicones in food release applications
- New DOWSIL™ 8024 Food Contact Release Emulsion
- Other Dow food contact silicone emulsions

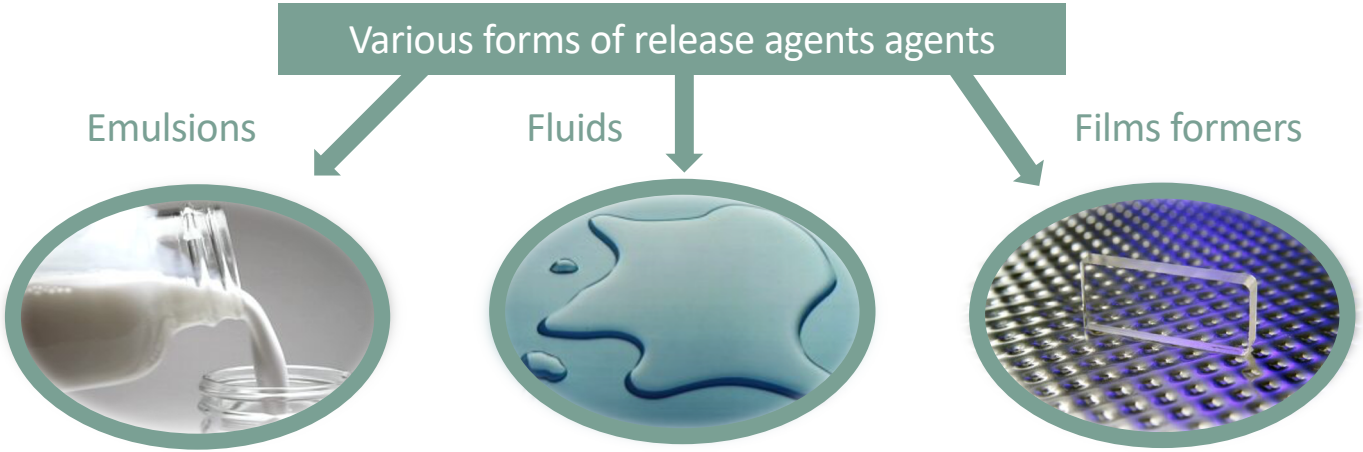


Food processing industry

Growth drivers	Trends & developments	Competitiveness
• Consumer healthier choices • Consumer protection regulations • Urbanization • Socioeconomic development	• Safe • Natural appeal • Wellness	• Flexible responding to market trends • Continuously strive for productivity improvements

Function and forms of release agents

- To keep a continuous inert parting film between a mold and a molded object to allow easy removal of the object from the mold.
- To improve mar and scratch resistance, as well as appearance, of the finished product.
- Dow silicone release agents provide release for: Plastics, Rubber, Metals …



Poll: What release agents are you familiar with?

a) Vegetable oil
b) Organic waxes
c) Silicones
d) Lecithin
e) Other

MEET YOUR PRODUCTIVITY GOALS WITH SILICONES

Silicones	Non-silicones
Low use levels Efficient release with only 1%-5% actives level Reduced release agent cost, better process control, lower reject rates	**Higher use levels** More material needed, which can increase cost and process variations
Safe / non-reactive Non reactive to finished products	**Odor** Some organic release agents affect odor due to higher use levels
Heat stable Ideal for high-temperature applications. Superior oxidation resistance, prevents buildup	**Inferior heat stability** Organics may degrade at high temperatures, which may cause film sticking
Low volatility No excessive film or smoke	**More volatility** Some organic release agents volatilize at higher temperature producing smoke
Other benefits: less residue and dry hand feel	**Others:** oil trace

Typical release applications










New DOWSIL™ 8024 Food Contact Release Emulsion

- Useful as release agent for direct and indirect food contact
- High release efficiency
- Heat resistance
- Odorless
- Non-staining
- Non-corrosive
- Lubrication retain on surface

Compliance with major food contact regulations and certifications

- **China: GB 9685:** (Plastic: PET; Coating; Adhesive; Paper)
- **USA: FDA:** 21 CFR 176.170,
- 21 CFR 176.180, 21 CFR 181.28
- **Germany:** BfR XV, BfR XXXVI, BfR XXXVI/2
- **EU:** Plastics Regulation 10/2011
- **NSF** M1, 3H

DOWSIL™ 8024 Food Contact Release Emulsion – Key properties

Emulsifier type:	Nonionic
Diluent:	Water

CTM*	Property	Value
0176	Appearance	milky-white liquid
0862	Non-volatile content	38-42 %w/w
0001	Specific Gravity	1.0
0007	pH	3-5

CTM*: Corporate Test Method, copies of CTM's are available upon request.

MARKET FEEDBACK

Conveyor belt

- Easy to use, easy to spray
- High release efficiency, effective at low levels
- Stable upon dilution
- Reduce static electricity in PET containers

Bakery & confectionery

- High temperature resistance
- Low use level
- Non reactive & odorless
- No build-up
- No impact on nutritional profile

How to use DOWSIL™ 8024 Food Contact Release Emulsion

Paper and plastic part release

- Dilute with water to 10-30 parts
- Spray in thin layer on film or evenly on mold

Lubricity for sheet anti-blocking

- Dilute with more water (100-200 parts max)
- Spraying in thin layer

Reformulate with organics

- Good compatibility with other food contact ingredients

MORE OPTIONS OF FOOD CONTACT SILICONE RELEASE EMULSION

Property	**DOWSIL™ 8024 Food Contact Release Emulsion**	DOWSIL™ SH 7024 Emulsion	XIAMETER™ MEM-0024 Emulsion
Non-volatile content	40 %	40 %	38.5 to 42.5 %
Material description	Milky-white liquid	Milky-white liquid	White/off-white, smooth flowable liquid
Shelf life	360 days	360 days	270 days
Regional availability	**Global**	Japan	North America, Latin America, South East Asia, India
Food grade compliance	GB 9685 (Plastic: PET; Coating; Adhesive; Paper), FDA (21 CFR 176.170, 21 CFR 176.180, 21 CFR 181.28), Regulation (EU) 10/2011; BfR XXXVI, BfR XXXVI/2, BfR XV; NSF M1, 3H	JHOSPA, JFdSL FDA (21 CFR 176.170, 21 CFR 176.180, 21 CFR 175.300, 21 CFR 181.28)	FDA (21 CFR 175.105, 21 CFR 176.170, 21 CFR 176.180, 21 CFR 175.300, 21 CFR 178.357, 21 CFR 181.28)
Dilution ratio suggestions	20 to 40 parts		
Application method	Spraying, dipping, wiping, or brushing		
Specific gravity	1	1	1
pH, as supplied	3 ~ 5	5.5 ~ 9.0	6.5 ~ 8.5
Emulsifier type	Nonionic	Nonionic	Nonionic
Diluent	Water	Water	Water
Applications	Proven release for paper, plastic; Sewing thread lubrication; Anti-stick for plastic sheet.		

LEARN MORE / ORDER SAMPLE

www.dow.com/food

CONTACT US

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DOW SILICONE ANTIFOAMS PORTFOLIO

Compliant: GMO free, Kosher, Halal, FDA 21 CFR 173.340 and other *Globally available*	*21 CFR 173.340 Use level: 10 ppm actives allowed in food ready to be consumed. Refer to 21 CFR 173.340 for additional details and other allowed use levels.* *Common uses: dairy, juices, soft drink concentrates, concentrated soups, protein supplement sport drinks, meat processing, jams, syrups, fermentations. Suitable for High and Low temperature processing*

Product	Silicone actives / Form	Aqueous / Non-aqueous systems
XIAMETER™ AFE-1510 Antifoam Emulsion	10% non-ionic emulsion	Aqueous
XIAMETER™ AFE-1520 Antifoam Emulsion	20% non-ionic emulsion	Aqueous
XIAMETER™ AFE-1530 Antifoam Emulsion	30% non-ionic emulsion	Aqueous
XIAMETER™ ACP-1920 Powdered Antifoam	20% white fluffy powder	Aqueous
XIAMETER™ ACP-1500 Antifoam Compound	100% silicone compound	Non-aqueous
XIAMETER™ PMX-200 Fluid, 350 cs FG	100% silicone fluid	Non-aqueous

THANK YOU

Q&A

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Seek

Together™