

NUTRITION

CHOCOLATE

Chocolate and compounds are complex, dispersed systems of solid ingredients in a continuous fat phase. High-quality chocolate is characterized by a smooth texture and glossy appearance.

The main ingredients in **chocolate** are cocoa butter and cocoa liquor.



In **compounds**, vegetable fats replace partially or fully the cocoa butter.



CHALLENGES

Fat bloom remains a problem for the industry and consists of the appearance of a white layer on the surface of the chocolate or compound. It is linked to fat migration and recrystallization of the fat on the product surface. It can be induced by prolonged storage, temperature variations, inadequate processing conditions and incompatible fats.

The flow behavior of chocolate is a critical parameter during processing and controlling it is essential to obtain the right consistency, avoid the formation of air bubbles and increase efficiency in coating applications.

WE KNOW IT'S MORE THAN CHOCOLATE



Enhanced **flow properties**



Reduced **fat bloom**



Uniform **chocolate coating**



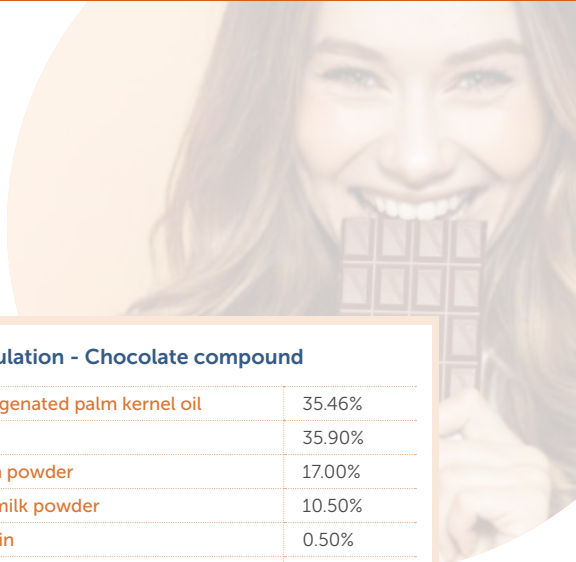
Easy **handling** and processing



Use of **alternative fats**

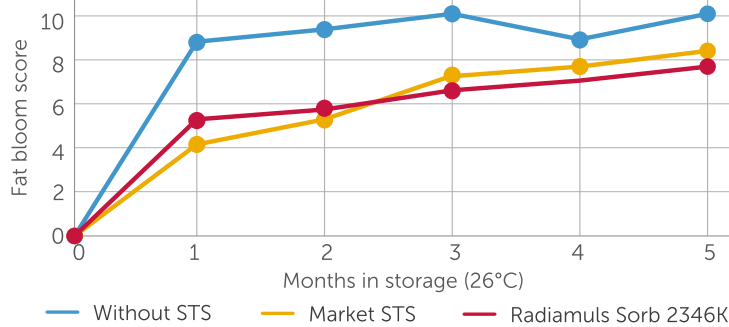
APPLICATION TEST

Fat bloom reduction & rheology improvement



Results

Fat bloom reduction



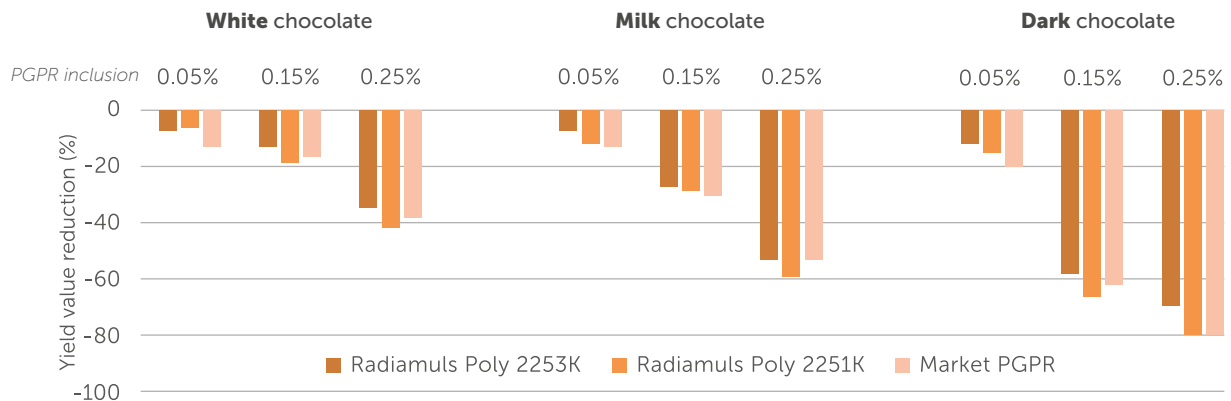
Formulation - Chocolate compound

Hydrogenated palm kernel oil	35.46%
Sugar	35.90%
Cocoa powder	17.00%
Skim milk powder	10.50%
Lecithin	0.50%
Vanillin	0.10%
Sorbitan tristearate	0.54%

The fat bloom score is based on 3 parameters

1. % surface with no gloss
2. Intensity of gloss reduction versus reference
3. % surface showing fat bloom

Rheology improvement



Conclusion

Radiumul Sorb 2345K & 2346K improve the fat bloom resistance of chocolate and compounds and support in keeping a glossy appearance for a prolonged period of time.

Radiumul Poly 2251K & 2253K are excellent rheology controllers and help to reduce the yield value. These emulsifiers are used to improve molding and enrobing processes.

Formulation - Chocolate (white, milk, dark)

	White	Milk	Dark
Cocoa mass	0%	11.5%	44.0%
Sugar	46.5%	42.0%	44.0%
Cocoa butter	29.5%	24.0%	12.0%
WMP	23.5%	22.5%	0%
Total fat	35.8%	36.2%	36.1%

Soy lecithin & Natural vanilla aroma

OUR SOLUTIONS

- » **Sorbitan tristearate**
Radiumul Sorb 2345K & 2346K
- » **Polyglycerol Polyricinoleate**
Radiumul Poly 2251K & 2253K