

# Emulsifier technology for effective feed production

## Pelleting

**AkzoNobel** 



bredol<sup>®</sup>

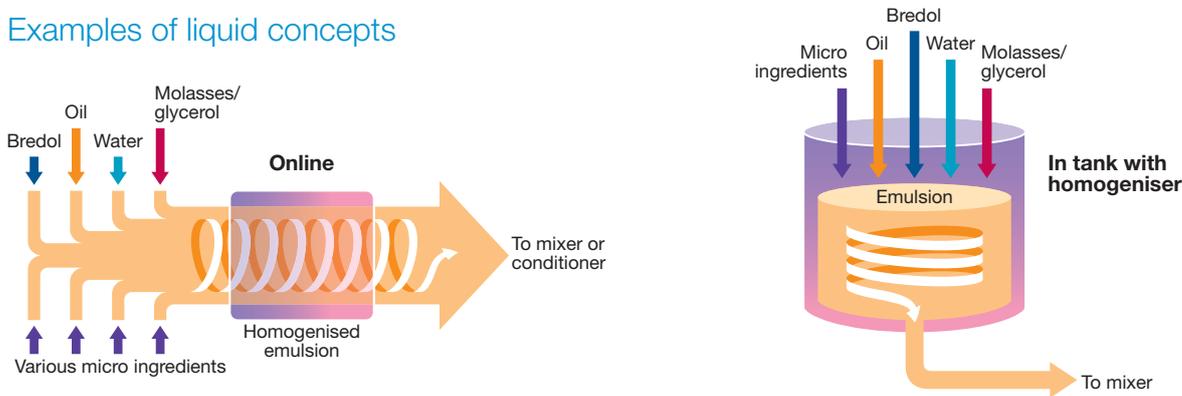
# Cost effective pellet production with Bredol emulsifier

Bredol is the key to succeed in producing a homogeneous mixture of liquid components

The Bredol concept allows greater flexibility in choice of liquids and dry raw materials without problems in production. It leads to higher throughput with less resistance and energy consumption. Pellets of consistent quality with stable moisture levels are produced. A key to success is the ability to produce a homogeneous mixture of liquid components with the help of Bredol product's powerful emulsifying properties.

The use of liquid components becomes easier with Bredol emulsifier. Fat and water and other ingredients form a fine mix which will be evenly distributed and absorbed in the meal leading to smoother production. High viscosity products like molasses or glycerol become more manageable. Micro ingredients become better dispersed or dissolved and better utilised, pigments being one example. In practice, the addition can be achieved through online mixing or via a tank with homogeniser.

## Examples of liquid concepts



## Typical advantages in production. Trial single pelleting

| Test run | Bredol ppm | Added water % | Oil in mix % | Press total Amps | Tonnes per Hour | Durability | Meal moisture | Nut moisture |
|----------|------------|---------------|--------------|------------------|-----------------|------------|---------------|--------------|
| Control  | 0          | 1.0           | 0.5          | 375              | 18              | 96.2       | 13.5          | 11.4         |
| Bredol   | 500        | 1.0           | 0.5          | 355              | 20              | 96.5       | 13.5          | 12.4         |

In the Bredol run, less energy was consumed and 11% higher output was achieved. This resulted in grinding process losses being replaced and the required moisture level was met.

## Broiler trial (42 days) with added water

|   | Control +2% added water | Bredol 683 +2% added water |
|---|-------------------------|----------------------------|
| Water content in feed after production, % | 12.5                    | 13.5                       |
| Body weight, g                            | 2321 a                  | 2312 a                     |
| Daily feed intake, g                      | 90.8 a                  | 90.5 a                     |
| Feed conversion rate (FCR)                | 1.762 a                 | 1.760 a                    |

p < 0.05

Source: University of Leuven, Belgium, 2004.

The higher retained moisture content in the Bredol group did not affect the feeding and growth parameters.

## Microbiological analysis of the broiler feed after two months storage

|   | Control + 2% added water | Bredol 683 +2% added water |
|---|--------------------------|----------------------------|
| Water content in feed after production, % | 12.5                     | 13.5                       |
| Aerobic bact., cfu/g                      | 4700                     | 2000                       |
| Moulds, cfu/g                             | 850                      | <150                       |

There was no microbiological growth despite higher moisture content in the Bredol group.

## With Bredol

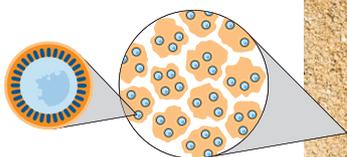
Homogeneous mixture of water and oil



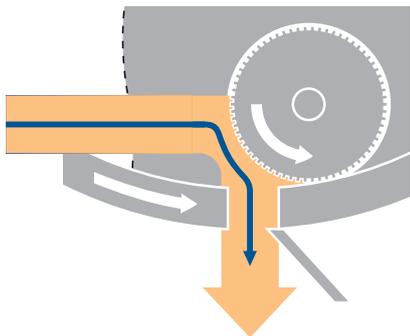
Homogeneous mixture of liquids evenly distributed and absorbed in the meal



Water in oil emulsion micelle



Fully conditioned meal

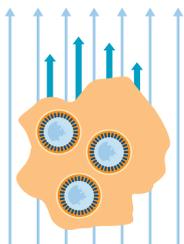


Smoother production flow at even temperature

Controlled pellet durability, starch gelatinisation and less fines with even distribution of nutrients



Improved moisture stability thanks to encapsulation



## Without Bredol

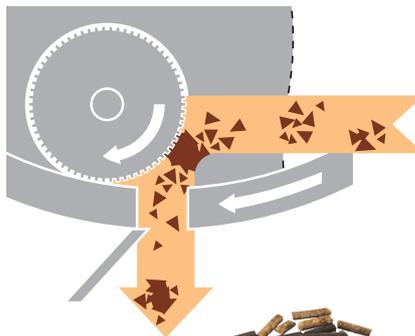
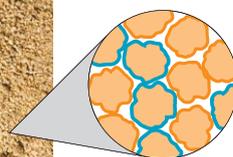
Water and oil separated



Lumps in the meal due to uneven distribution of liquids



Water and oil added separately



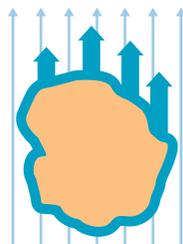
Partly conditioned meal

Risk for over heating and blocking

Variations in product form and nutritive value



Surface moisture evaporating during cooling



The information presented in this brochure is true and accurate to the best of our knowledge, but without any guarantee unless explicitly given. Since the conditions of use are beyond our control, we disclaim any liability incurred in connection with the use of these products

data or suggestions, including those related to patent infringement. The development of emulsifier technology is a continuous process within AkzoNobel and the company is the owner of patents in many countries. It is the policy of AkzoNobel to enforce these patent

rights and, accordingly, AkzoNobel is actively monitoring the industry for infringement and is in the front line when it concerns feed and food health & safety as well as environmental care. The quality system is based on HACCP principles and is FAMI-QS certified.

# Planet Possible: Our commitment to doing more with less

Our success as a company depends on sustainability. At AkzoNobel we have sharpened our focus on sustainability by reviewing our sustainability risks and opportunities against global trends and evaluating how they will impact our customers by 2020. We express the outcome as our Planet Possible approach to sustainability. It's our commitment to creating more value from fewer resources.



We know only too well that our future hinges on our ability to radically do more while using less.

- More innovation, less traditional solutions;
- More renewable energy and materials, less fossil-based;
- More value chain focus, less introverted thinking.

Employing our new strategy of radical efficiency, we work with customers and suppliers to open infinite possibilities to a finite world. Learn more at [www.akzonobel.com/planetpossible](http://www.akzonobel.com/planetpossible)

## Number 1

our position in the Materials industry group on the 2015 Dow Jones Sustainability Index.

## At least 20%

share of revenue we aim to achieve by 2020 from products with a sustainability advantage for customers.

## More than 25%

reduction we aim to achieve in our cradle-to-grave carbon foot print per ton of product by 2020.

### Contact us directly for detailed product information and sample requests:

[bredol@akzonobel.com](mailto:bredol@akzonobel.com)  
[www.bredol.com](http://www.bredol.com)

#### USA and Canada

Global Headquarters  
Chicago, USA  
T +1 312 544 7000

#### South America

Regional sales office  
Itupeva, Brazil  
T +55 11 4591 8938

#### Central America and Caribbean

Regional sales office  
Mexico City, Mexico  
T +52 55 5261 7895

#### China

Regional Headquarters  
Shanghai, China  
T +86 21 2220 5000

#### South East Asia

Regional Headquarters  
Singapore  
T +65 6635 5183

#### India

Regional sales office  
Mumbai, India  
T +91 22 2778 7386

#### Europe

Regional Headquarters  
Stenungsund, Sweden  
T +46 303 850 00

#### Middle East

Regional sales office  
Dubai, United Arab Emirates  
T +971 4347 2491

#### Russia

Regional sales office  
Moscow, Russia  
T +7 495 960 2890

Products mentioned are trademarks of the AkzoNobel group and registered in many countries.

The information presented herein is true and accurate to the best of our knowledge, but without any guarantee unless explicitly given. Since the conditions of use are beyond our control, we disclaim any liability, including patent infringement, incurred in connection with the use of these product data or suggestions.



[www.akzonobel.com](http://www.akzonobel.com)

AkzoNobel creates everyday essentials to make people's lives more liveable and inspiring. As a leading global paints and coatings company and a major producer of specialty chemicals, we supply essential ingredients, essential protection and essential color to industries and consumers worldwide. Backed by a pioneering heritage, our innovative products and sustainable technologies are designed to meet the growing demands of our fast-changing planet, while making life easier. Headquartered in Amsterdam, the Netherlands, we have approximately 45,000 people in around 80 countries, while our portfolio includes well-known brands such as Dulux, Sikkens, International, Interpon and Eka. Consistently ranked as a leader in sustainability, we are dedicated to energizing cities and communities while creating a protected, colorful world where life is improved by what we do.

© 2016 Akzo Nobel N.V. All rights reserved.



AN\_202805\_051016