

Take A Healthy Bite

Low Trans Non-Hydrogenated Cocoa Butter Replacers

Sweeten up your pleasant treats with healthy low trans ingredients from IOI Loders Croklaan.

Characteristic of Low Trans CBR

- ✓ Low trans fatty acid < 1%
- ✓ A non-hydrogenated fat
- ✓ Good glossiness & gloss retention
- ✓ Specialize for enrobing products
- ✓ Higher cocoa butter tolerance than Cocoa Butter Substitute

IOI Loders Croklaan

*Let's create
together*





The healthier, non-hydrogenated, low trans options for chocolate compound with **COUVA NH**

In line with the recent U.S. Food and Drug Administration (FDA) ban on artificial trans-fats, food manufacturers supplying to the U.S. must remove the primary source of artificial trans fat – partially hydrogenated oils (PHOs) from their products over the next three years.



Earlier in 2013, the World Health Organization (WHO) already called for the elimination of trans fats from the global food supply. Consumption of trans fats is associated with an increased risk of coronary heart disease, stroke and diabetes.

One country after another started to impose regulation on food manufacturers to eliminate trans fats from their products in a bid to reduce coronary heart disease and prevent thousands of fatal heart failure every year.

The Chinese government has increased its efforts to restrict trans fatty acid. On January 1, 2013, it became mandatory for manufacturers to indicate on the nutrition label of foods the content of hydrogenated and partially hydrogenated fats. Several countries in Asia Pacific including Singapore, South Korea, Australia, Taiwan and some others have also mandated trans fatty acid labelling regulations.



Low Trans Cocoa Butter Replacers

Global leader IOI Loders Croklaan has long been the front-runner in developing non-hydrogenated vegetable fats. It is now expanding its cocoa butter replacer (CBR) portfolio with a full range of products with low trans fatty acid content.

IOI Loders Croklaan's new cocoa butter replacer (CBR) have a low trans fatty acids content of only less than one percent. The new products – COUVA NH range complement its current CBR range, with health improvement profile and the same functional advantages as the traditional type of CBR. This series of fats enable end products to be labelled as trans fat free in most of the countries.

COUVA NH Range

COUVA NH represents IOI Loders Croklaan's range of low trans CBR compounds for coating.

Characteristic

- ✓ A non-hydrogenated CBR
- ✓ Low trans fatty acid < 1%
- ✓ A non-tempering fat
- ✓ Specialize in enrobing on biscuits, wafers, nougats and other bakery-chocolate combination products.



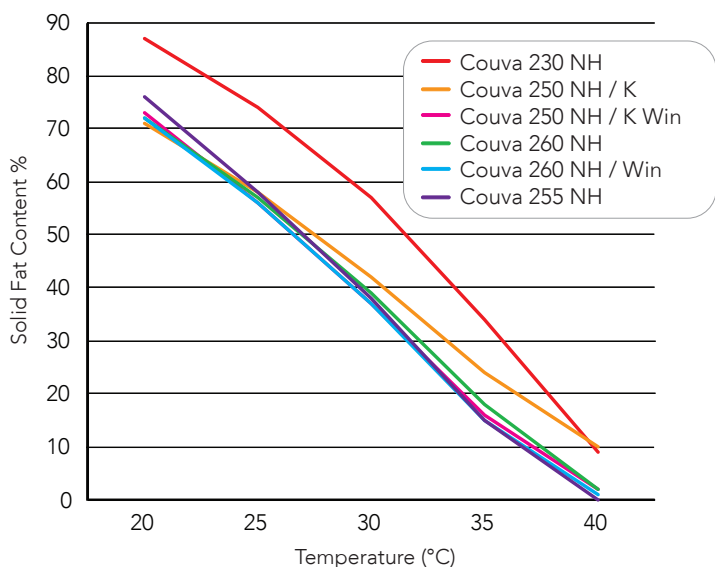
All-purpose COUVA NH Series

| | |
|------------------------|----------------------|
| Standard Low Trans CBR | Couva 250 NH / K |
| Better melting profile | Couva 250 NH / K Win |
| Heat resistant | Couva 230 NH |

High Performance COUVA NH Series (Better cocoa butter tolerance, 10%)

| | |
|-------------------------------------------------------------|--------------------|
| Good glossiness & gloss retention | Couva 260 NH |
| Good glossiness & gloss retention Better melting profile | Couva 260 NH / Win |
| Better melting profile | Couva 255 NH |

Melting Profile of Low Trans CBR - COUVA NH



Melting Profile Table

| Temperature °C | 20 | 25 | 30 | 35 | 40 |
|--------------------|----|----|----|----|----|
| Couva 250 NH/K | 71 | 58 | 42 | 24 | 10 |
| Couva 250 NH/K Win | 73 | 56 | 37 | 16 | 2 |
| Couva 230 NH | 87 | 74 | 57 | 34 | 9 |
| Couva 260 NH | 72 | 57 | 39 | 18 | 2 |
| Couva 260 NH/ Win | 72 | 56 | 37 | 15 | 1 |
| Couva 255 NH | 76 | 58 | 38 | 15 | 0 |

Improved Cocoa Butter Compatibility

| Ingredients | Percentage (%) | Fat phase |
|---------------------------------|----------------|-------------|
| *Low Trans CBR | 30.0 | 30.0 |
| Cocoa Mass | 6.0 | 3.0 |
| Alkalized Cocoa Powder | 3.2 | 0.4 |
| Dextrose | 12.0 | |
| Skim Milk Powder | 5.0 | |
| Sugar | 43.2 | |
| Lecithin | 0.4 | |
| PGPR | As required | |
| Total | 100 | 33.7 |
| Cocoa Butter / Total Fat | | 10.0 |

*Couva 260 NH, Couva 260 NH/Win & Couva 255 NH



Bring you the desired result

COUVA NH has no hydrogenation and do not require tempering for compound making. It provides maximum processing convenience in the preparation of confectionery and bakery coating with maximum chocolate flavour. It has less tendency to develop soapy taste. This series of fats also impart excellent gloss retention, more harmonized mouthfeel, more pliable and longer shelf life to the final products.

Low Trans CBR & CBS Properties

| Product Group | Low Trans CBR | Standard CBS |
|------------------------|---------------|--------------|
| Cocoa butter tolerance | < 10%* | < 5% |
| Hydrogenation | No | Yes |
| Tempering | No | No |
| Trans (%) | < 1 | < 1 |
| Crystallization speed | Fast | Faster |

*Couva 260 NH, Couva 260 NH/Win & Couva 255 NH

Sensory Test

Low Trans CBR & Standard CBS Enrobed Products

| Product Group | Low Trans CBR | Standard CBS |
|-----------------------------------------------------------------|----------------------|-----------------------------|
| End product shelf life (Bloom stability & glossiness retention) | Longer | Fair |
| Glossiness | Good | Better |
| Enrobing for bakery products | Pliable | Less Pliable (easily crack) |
| Soapy tendency (Risk of saponification) | Less | Yes |
| Mouthfeel with enrobed product. | Better Harmonization | Less Harmonization |

COUVA NH Series

| Criteria | Couva 250 NH / K | Couva 250 NH / K Win | Couva 230 NH | Couva 260 NH | Couva 260 NH / Win | Couva 255 NH |
|-----------------|------------------|----------------------|--------------|--------------|--------------------|--------------|
| Melting profile | Good | Better | Good | Better | Best | Best |
| Heat resistant | Better | Good | Best | Good | Good | Good |
| Glossiness | Good | Better | Good | Best | Best | Better |
| Gloss retention | Good | Better | Good | Best | Best | Better |
| CCB tolerance | 5% | 5% | 5% | 10% | 10% | 10% |



Low Trans CBR & High Trans CBR

- ✓ Trans level : Low Trans CBR has < 1% compared to High Trans CBR at > 35%.
- ✓ Low Trans CBR has no hydrogenation compared to partial hydrogenation in High Trans CBR.
- ✓ Clean label : Compliance with Countries' trans regulation.
- ✓ Crystallization Speed : High Trans CBR has faster crystallization performance than Low Trans CBR.

About Us

We are a leading producer of premium quality oils and fats encompassing:

1 fully integrated controlled and sustainable supply chain in conjunction with IOI Group to deliver consistent high quality

3 continents from which we operate, enabling us to serve the globe

100+ countries served

100% traceability for directly sourced palm oil

125 years of experience in ingredients, applications and processes

300+ patents awarded for innovations developed by our R&D specialists

500+ products used in a wide range of applications, from animal nutrition and confectionery to dairy fat alternatives and infant nutrition

1150 colleagues, partnering with you to deliver world-class solutions everyday, that help you create healthy offerings, sustainable and cost-effective offerings

Let's create together