

### Certificate of Analysis

Product: ThaiOL 1618  
Description: Cetyl-Stearyl Alcohol  
Batch No: 1215110101  
Tank No: 3200T009B  
Lab Report No: LAR-C4-1511-00056  
Tested Date: 01 November 2015

Characteristics	Analysis Method	Specification	Result
Appearance	Visual check	white solid or pastilles	White Solid
Colour APHA	Inhouse Method Base on ISO 6271-1:2004 (E)	0- 10	4
Acid value mgKOH/g	Inhouse Method Base on DIN EN ISO 660-1996	0- 0.1	0.01
Sap. value mgKOH/g	Inhouse Method Base on ISO 3657:2002 (E)	0- 1.0	0.4
Hydroxyl value mgKOH/g	Inhouse Method Base on ASTM E 1899-02	210-220	215.4
Water content %	ASTM E203-01	0- 0.3	0.014
Chain distribution %	Inhouse Method Base on Reference No.970059-0		
C14		0-3	0.05
C16		22-32	24.57
C18		66-76	74.55
C20		0-3	<0.01
Iodine value, g Iodine/100g	ISO 3961-1996	0-0.5	<0.04
Solidification range °C	ISO 3841-1997	50-54	53.5
Hydrocarbon %	Inhouse Method Base on Reference No.970059-0	0-0.5	<0.01
Carbonyl Number, mg/kg	Inhouse Method Base on Reference No.980144-01	150 max.	40

We hereby verify the analysis of the sample as shown above.  
Nawin Suksuwan  
Process Skilled Specialist (QA)

(This is e computer generated document and will not bear any signature)

Manufacturing Date: 01 November 2015    ExpiryDate: 31 October 2017

The test values listed above were determined from selected, representative samples taken from the batch(es) to be delivered.  
The above information only applies to material directly after production. It does not release the purchaser from conducting his own incoming inspection and does not release a guarantee of certain characteristics, or of the suitability of the product for a certain