![GGC Global Green Chemicals logo]

Head Office : 555/1 Energy Complex, Building A, 4th Floor, Vibhavadi-Rangsit Road,
Chatuchak, Chatuchak, Bangkok 10900 Thailand
Phone: +66 (0) 2558-7300   Fax: +66 (0) 2558-7301
Factory :   8,10 Soi G–12, Eastern Industrial Estate, Pakorn Songkhraorat Road,
Map Ta Phut, Muang Rayong, Rayong 21150 Thailand
Phone: +66 (0) 3899-4000   Fax: +66 (0) 3897-7444
Visit our website : www.ggcplc.com

Certificate of Analysis

Product: THAIOL 1618

Description: Cetyl-Stearyl Alcohol

Batch No: 1223081806

Tank No: 3100T010

Lab Report No: LAR-C04-2308-01104/TFA-C04-I-2308038096

Tested Date: 21 August 2023

Characteristics	Analysis Method	Specification	Result
Appearance	Visual check	White solid or Pastilles	Pastilles
Colour, APHA	ASTM D5386-16	0-10	4
Acid value, m gKOH/g	ISO660-2009	0-0.1	0.03
Sap. value, mg KOH/g	ISO 3657:2013 (E)	0-1.0	<0.1
Hydroxyl value, mgKOH/g	Based on ASTM D6342-12 (Reapproved 2017)e1	210-220	213
Water content, %	ASTM E203-16	0-0.3	0.058
Chain distribution, %	Based on COGNIS No.970059-01		
C14		0-3	0.06
C16		22-32	25.61
C18		66-76	73.06
C20		0-3	0.22
Hydrocarbon		0-0.5	<0.01
Iodine value, g Iodine/100g	AOCS Cd 1C-85	0-0.5	<0.1
Solidification Point, ^{o}C	ASTM D7346-15 (Reapproved 2021)	50-54	53.7
Carbonyl Number, mg/kg	Based on COGNIS No.980144-01	150 max	40

We hereby verify the analysis of the sample as shown above

Approved by   :   Rattanaporn Chansaithong
                           QA & QC Engineer
(This is e computer generated document and will not bear any signature)

Manufacturing Date: 18 August 2023   **Expiry Date:**   17 August 2025