
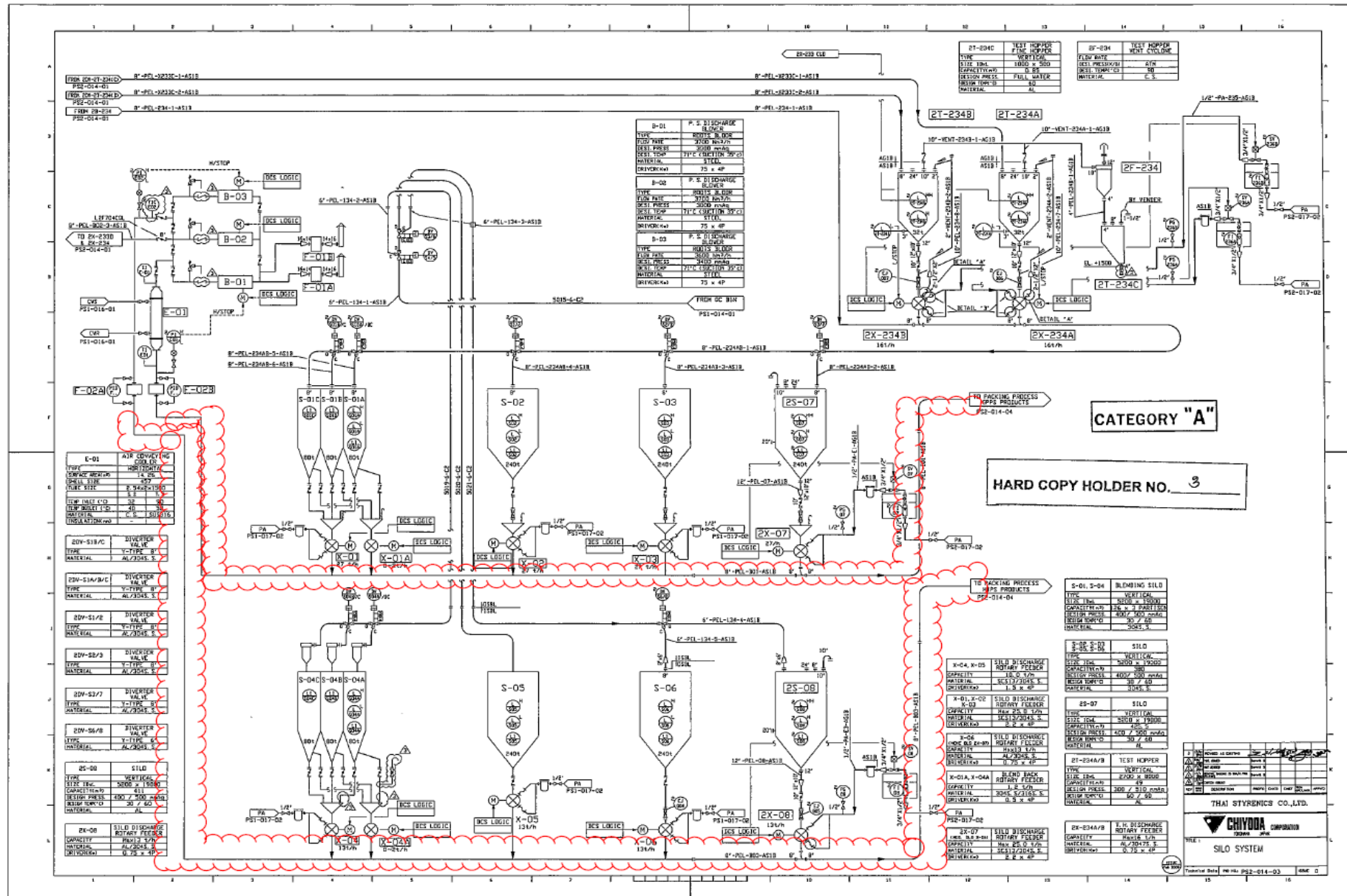


ภาคผนวก ข.29

เอกสารมาตรการลดเสียงดังบริเวณ Bagging Unit
(MOC ติดตั้งฉนวนลดเสียงหน่วย Conveying Unit)

		<h1>Project Service Request (PSR) Form</h1>	
1) Project Service Request Information			
Initiator Name	<input type="text" value="Worathep S."/>	Plant VP Approver	<input type="text" value="Anupong P."/>
Project Categorization / Investment Type	<input type="text" value="05 Law & Regulation"/>	Plant	<input type="text" value="P-PS"/>
Initiation Date	<input type="text" value="30.11.2020"/>	Area / Unit	<input type="text" value="M - THAI STYRENICS COMPANY"/>
Project Title	<input type="text" value="Installation Insulation for pipe Conveying (Idea Mani ID : 2020-005005)"/>		
Required Project Engineer of TPX?	<input type="text" value="YES"/>	Project Priority	<input type="text" value="Medium"/>
Background (History / Situation / Problem / Opportunity)	<div><div></div><div>เนื่องจากบริเวณการขนส่งเม็ดพลาสติกมีเสียงดัง จึงพิจารณาจะติดตั้งฉนวนลดเสียง</div></div>		
Project Objectives	<div><div></div><div>เพื่อให้บริเวณ Conveying Unit มีเสียงจากการขนส่งเม็ดพลาสติกลดลง</div></div>		
Proposal / Project Scope	<div><div></div><div>เปรียบเทียบฉนวนลดเสียงแต่ละแบบ เพื่อติดตั้งและวัดความดังเสียงว่าลดลงได้ตามเกณฑ์ที่ตั้งไว้</div></div>		
<div><div><div>Key Attachments <i>(Please tick if applicable)</i></div><div><div><input checked="" type="checkbox"/> Attachment 1) Process Description/Blockflow diagram/PFD/Marked-up P&ID</div><div><input type="checkbox"/> Attachment 2) Plot Plan/Site Photos</div><div><input type="checkbox"/> Attachment 3) Reference Incident Case (for J-Factor)</div><div><input type="checkbox"/> Attachment 4) Benefit Calculation (for %IRR)</div></div></div></div>			
Assigned Project Manager/Engineer	<input type="text"/>	Plan KOM Date	<input type="text" value="24.12.2020"/>
		Plan Gate 1 Date	<input type="text"/>
		Plan Gate 2 Date	<input type="text"/>
		Plan Gate 3 Date	<input type="text"/>
		Plan Finish Date	<input type="text" value="31.10.2021"/>
		Proposed Budget Source	<input type="text" value="ER (Engineering Request) Budget"/>
		Other <i>(Please specify)</i>	<input type="text"/>
Note: Please complete all fields before approval by Line Manager		** = Planned Date to get Gate 3 endorsement from PIC/IC ** = Pre-Startup Safety Review (PSSR) Date**	
2.1) BAU (Safety, Environment and Law & Regulation) Project Categorization			
RAM Assessment (Criticality)		<input type="text" value="Low"/> (if RAM assessment result is Very low or Low, No investment)	
Base Risk, the risk without any modifications			
Potential Consequence Cost (Enter RAM Cost from below or enter own calculation as per detail)		10,000,000	
RAM translator, enter severity Number from RAM		<input type="text" value="4"/>	RAM eq Cost
		<input type="text" value="10,000,000"/>	Baht(฿)
Annual Likelihood (Use drop down menu or enter own calculation)		<input type="text" value="Expected to happen"/>	
		1	
Exposure Factor (Use drop down menu or enter own calculation)		<input type="text" value="Rare (a few times per year)"/>	
		0.1	
Calculated annual Probability		0.1	
Annualized Base Risk (฿/year)		1,000,000	
Risk of Alternative			
Effectiveness of alternative		<input type="text" value="Halving the Risk 50%"/>	Reduction in Risk
		50%	
Annualized Risk of Alternative (฿/year)		500,000	
Cost of Alternative			
Project Cost of Alternative (฿)		<input type="text" value="200,000"/>	
Production Loss during Implementation (฿)		<input type="text" value="-"/>	
Increase in Operating Costs or other economic penalties (฿)		<input type="text" value="-"/>	
Decrease in Operating Costs or other economic benefits (฿)		<input type="text" value="-"/>	
Project Life Time to convert Opex/Penalties into once off Cost(years)		<input type="text" value="-"/>	
Pay Out Time Investment Criteria, to convert benefits into economically justifiable Cost (years)		<input type="text" value="-"/>	
Cost of Risk Reduction (฿)		200,000	
Annualized Base Risk (฿/year)		1,000,000	
Annualized Risk of Alternative (฿/year)		500,000	
Cost of Risk Reduction (฿)		200,000	
Justification Factor		2.50	
2.2) Growth or Sustain Core or BAU (Maintain Reliability) Project Categorization			
Total Investment Cost (฿)		<input type="text"/>	
Project Starting Year		<input type="text"/>	
Project Completion Year		<input type="text"/>	
Residual Value (฿)		<input type="text" value="-"/>	
Utilities (฿/year)		<input type="text" value="-"/>	
Labour (฿/year)		<input type="text" value="-"/>	
Maintenance (% of total investment cost)		<input type="text"/>	
Catalyst & Chemicals (฿/year)		<input type="text" value="-"/>	
Benefits (฿/year)		<input type="text"/>	
Profit (฿/year)		<input type="text" value="-"/>	
Simple Payback (Year)			
IRR			
NPV			
WACC (as per latest announced Corporate Assumption)		8.53%	

Attachment 1) Process Description/Blockflow Diagram/Process Flow Diagram/Marked-up P&ID



ผลการตรวจวัดระดับเสียงบริเวณ Bagging Unit

ก่อนติดตั้งฉนวนลดเสียง

Request No. LA63-R0307

Report No. R6303-0036

TEST REPORT

CUSTOMER : GC Styrenics Company Limited
ADDRESS : 7 I-1 Rd., Map Ta Phut Industrial Estate Map Ta Phut Rayong 21150
SAMPLE SOURCE : GCS Plant
SAMPLE POINT : Bagging HIPS ตรงตำแหน่งกรอกเม็ดลงถุง
PARAMETER* : L_{eq} 1 hr., L_{eq} 8 hr. & L_{max}
DETERMINATION METHOD : In-house Method : A-DM-001
Based on ISO 11202:2010
INSTRUMENT : Integrated Sound Level Meter
S/N 01147298 : Type 2
SAMPLE NO. : 01877
MEASURING DATE : 26/02/2020
RECEIVED DATE : 26/02/2020
REPORTED DATE : 05/03/2020

MEASURING TIME	RESULT		UNIT
	L_{eq} 1 hr.	L_{max}	
08:00-09:00	84.0	98.2	dB(A)
09:00-10:00	81.9	99.9	dB(A)
10:00-11:00	79.8	91.5	dB(A)
11:00-12:00	81.9	92.1	dB(A)
12:00-13:00	82.3	93.9	dB(A)
13:00-14:00	83.9	98.8	dB(A)
14:00-15:00	84.1	98.9	dB(A)
15:00-16:00	83.9	95.1	dB(A)
L_{eq} 8 hr.	82.9	—	dB(A)
Standard	90 ¹⁾	140 ¹⁾ , 115 ²⁾	dB(A)

REMARK : ¹⁾ Notification of The Ministry of Industry B.E. 2546 (2003)

²⁾ Regulation of The Ministry of Labour B.E. 2559 (2016)

* Parameter Outside The Scope of The Registration of The Department of Industrial Works

(Measurement By Mrs. Wanpen Lhaochindawat)

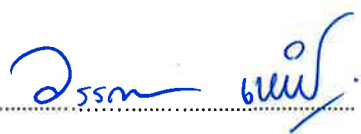


บริษัท อีสเทิร์นไทยคอนซัลติ้ง 1992 จำกัด

REPORTED TEST REFER TO SUBMITTED SAMPLES ONLY

THIS REPORT SHALL NOT REPRODUCED EXCEPT IN FULL

WITHOUT THE WRITTEN APPROVAL LABORATORY

Approved By 
(MRS. WANPEN LHAOCHINDAWAT)

05/03/2020

Request No. LA63-R0307

Report No. R6303-0037

TEST REPORT

CUSTOMER : GC Styrenics Company Limited
ADDRESS : 7 I-1 Rd., Map Ta Phut Industrial Estate Map Ta Phut Rayong 21150
SAMPLE SOURCE : GCS Plant
SAMPLE POINT : Bagging HIPS บริเวณท้าย Line
PARAMETER* : L_{eq} 1 hr., L_{eq} 8 hr. & L_{max}
DETERMINATION METHOD : In-house Method : A-DM-001
Based on ISO 11202:2010
INSTRUMENT : Integrated Sound Level Meter
S/N 01209917 : Type 2
SAMPLE NO. : 01878
MEASURING DATE : 26/02/2020
RECEIVED DATE : 26/02/2020
REPORTED DATE : 05/03/2020

MEASURING TIME	RESULT		UNIT
	L_{eq} 1 hr.	L_{max}	
08:00-09:00	78.1	87.8	dB(A)
09:00-10:00	77.5	94.6	dB(A)
10:00-11:00	64.7	75.8	dB(A)
11:00-12:00	75.2	86.0	dB(A)
12:00-13:00	78.1	87.1	dB(A)
13:00-14:00	78.8	88.4	dB(A)
14:00-15:00	82.8	101.6 [#]	dB(A)
15:00-16:00	78.4	87.1	dB(A)
L_{eq} 8 hr.	78.4	—	dB(A)
Standard	90 ¹⁾	140 ¹⁾ , 115 ²⁾	dB(A)

REMARK : ¹⁾ Notification of The Ministry of Industry B.E. 2546 (2003)

²⁾ Regulation of The Ministry of Labour B.E. 2559 (2016)

* Parameter Outside The Scope of The Registration of The Department of Industrial Works

(Measurement By Mrs. Wanpen Lhaochindawat)



บริษัท อีสเทิร์นไทยคอนซัลติ้ง 1992 จำกัด

REPORTED TEST REFER TO SUBMITTED SAMPLES ONLY

THIS REPORT SHALL NOT REPRODUCED EXCEPT IN FULL

WITHOUT THE WRITTEN APPROVAL LABORATORY

Approved By



(MRS. WANPEN LHAOCHINDAWAT)

05/03/2020

Request No. LA63-R0307

Report No. R6303-0040

TEST REPORT

CUSTOMER : GC Styrenics Company Limited

ADDRESS : 7 I-1 Rd., Map Ta Phut Industrial Estate Map Ta Phut Rayong 21150

SAMPLE SOURCE : GCS Plant

SAMPLE POINT : Bagging GPPS ตรงตำแหน่งกรอกเม็ดลงถุง

PARAMETER* : L_{eq} 1 hr., L_{eq} 8 hr. & L_{max}

DETERMINATION METHOD : In-house Method : A-DM-001
Based on ISO 11202:2010

INSTRUMENT : Integrated Sound Level Meter
S/N 00646443 : Type 2

SAMPLE NO. : 01881

MEASURING DATE : 26/02/2020

RECEIVED DATE : 26/02/2020

REPORTED DATE : 05/03/2020

MEASURING TIME	RESULT		UNIT
	L_{eq} 1 hr.	L_{max}	
08:10-09:10	78.4	89.8	dB(A)
09:10-10:10	85.5	97.5	dB(A)
10:10-11:10	83.5	113.5 [#]	dB(A)
11:10-12:10	70.4	74.4	dB(A)
12:10-13:10	80.2	89.6	dB(A)
13:10-14:10	80.3	92.7	dB(A)
14:10-15:10	83.9	97.9	dB(A)
15:10-16:10	83.4	96.4	dB(A)
L_{eq} 8 hr.	82.2	—	dB(A)
Standard	90 ¹⁾	140 ¹⁾ , 115 ²⁾	dB(A)

REMARK : ¹⁾ Notification of The Ministry of Industry B.E. 2546 (2003)

²⁾ Regulation of The Ministry of Labour B.E. 2559 (2016)

* Parameter Outside The Scope of The Registration of The Department of Industrial Works

(Measurement By Mrs. Wanpen Lhaochindawat)



บริษัท อีสเทิร์นไทยคอนซัลติ้ง 1992 จำกัด

REPORTED TEST REFER TO SUBMITTED SAMPLES ONLY

THIS REPORT SHALL NOT REPRODUCED EXCEPT IN FULL

WITHOUT THE WRITTEN APPROVAL LABORATORY

Approved By

(MRS. WANPEN LHAOCHINDAWAT)

05/03/2020

Request No. LA63-R0307

Report No. R6303-0041

TEST REPORT

CUSTOMER : GC Styrenics Company Limited

ADDRESS : 7 I-I Rd., Map Ta Phut Industrial Estate Map Ta Phut Rayong 21150

SAMPLE SOURCE : GCS Plant

SAMPLE POINT : Bagging GPPS บริเวณท้าย Line

PARAMETER* : L_{eq} 1 hr., L_{eq} 8 hr. & L_{max}

DETERMINATION METHOD : In-house Method : A-DM-001
Based on ISO 11202:2010

INSTRUMENT : Integrated Sound Level Meter
S/N 090085 : Type 2

SAMPLE NO. : 01882

MEASURING DATE : 26/02/2020

RECEIVED DATE : 26/02/2020

REPORTED DATE : 05/03/2020

MEASURING TIME	RESULT		UNIT
	L_{eq} 1 hr.	L_{max}	
08:00-09:00	78.0	86.9	dB(A)
09:00-10:00	77.1	91.7	dB(A)
10:00-11:00	75.9	86.2	dB(A)
11:00-12:00	78.3	86.5	dB(A)
12:00-13:00	78.9	86.3	dB(A)
13:00-14:00	80.6	87.2	dB(A)
14:00-15:00	77.5	85.9	dB(A)
15:00-16:00	76.3	82.8	dB(A)
L_{eq} 8 hr.	78.1	—	dB(A)
Standard	90 ^{1/}	140 ^{1/} , 115 ^{2/}	dB(A)

REMARK : ^{1/} Notification of The Ministry of Industry B.E. 2546 (2003)

^{2/} Regulation of The Ministry of Labour B.E. 2559 (2016)

* Parameter Outside The Scope of The Registration of The Department of Industrial Works
(Measurement By Mrs. Wanpen Lhaochindawat)



บริษัท อีสเทิร์นไทยคอนซัลติง 1992 จำกัด

Approved By 
(MRS. WANPEN LHAOCHINDAWAT)

05/03/2020

REPORTED TEST REFER TO SUBMITTED SAMPLES ONLY
THIS REPORT SHALL NOT REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL LABORATORY

ผลการตรวจวัดระดับเสียงบริเวณ Bagging Unit

หลังติดตั้งฉนวนลดเสียง



ACCREDITED
ISO 9001 / ISO 14001

EASTERN THAI CONSULTING 1992 CO., LTD.

683 Moo 11 Sukhapibarn 8 Rd., Nongkham, Sriracha, Chonburi 20230
Tel. 0-3848-1197-8, 0-3876-3031-2 Fax : 0-3848-2095 E-mail : marketing@etc1992.com



NSC-TISI-TIS 17025
TESTING 0031

Request No. LA64-R1239

Report No. R6412-0913

TEST REPORT

CUSTOMER : GC Styrenics Company Limited
ADDRESS : 7 I-1 Rd., Map Ta Phut Industrial Estate, Map Ta Phut, Rayong 21150
SAMPLE SOURCE : GCS Plant
SAMPLE POINT : Bagging HIPS บริเวณท้าย Line
PARAMETER* : L_{eq} 1 hr., L_{eq} 8 hr. & L_{max}
DETERMINATION METHOD : In-house Method : A-DM-001
Based on ISO 11202:2010
INSTRUMENT : Integrated Sound Level Meter
S/N 090090 : Type 2
SAMPLE NO. : 29017
MEASURING DATE : 10/12/2021
RECEIVED DATE : 10/12/2021
REPORTED DATE : 15/12/2021

MEASURING TIME	RESULT		UNIT
	L_{eq} 1 hr.	L_{max}	
08:00-09:00	76.8	84.3	dB(A)
09:00-10:00	79.2	88.4	dB(A)
10:00-11:00	77.6	86.0	dB(A)
11:00-12:00	70.0	83.5	dB(A)
12:00-13:00	73.2	83.7	dB(A)
13:00-14:00	77.2	83.9	dB(A)
14:00-15:00	78.9	88.2	dB(A)
15:00-16:00	79.4	84.6	dB(A)
L_{eq} 8 hr.	77.4	—	dB(A)
Standard	90 ¹	140 ¹ , 115 ²	dB(A)

REMARK : ¹ Notification of The Ministry of Industry B.E. 2546 (2003)

² Regulation of The Ministry of Labour B.E. 2559 (2016)

* Parameter not have License Registration of Department of Labour Protection and Welfare

(Ms. Thanatporn Klinsoon is Section Head / Mrs. Wanpen Lhaochindawat is Technical Management)

(Measurement By Mrs. Wanpen Lhaochindawat)



Approved By

(MRS. WANPEN LHAOCHINDAWAT)

15/12/2021

REPORTED TEST REFER TO SUBMITTED SAMPLES ONLY

THIS REPORT SHALL NOT REPRODUCED EXCEPT IN FULL

WITHOUT THE WRITTEN APPROVAL LABORATORY

TEST REPORT

CUSTOMER : GC Styrenics Company Limited
ADDRESS : 7 I-1 Rd., Map Ta Phut Industrial Estate, Map Ta Phut, Rayong 21150
SAMPLE SOURCE : GCS Plant
SAMPLE POINT : Bagging HIPS ตรงตำแหน่งกรอกเม็ดลงถุง
PARAMETER* : L_{eq} 1 hr., L_{eq} 8 hr. & L_{max} SAMPLE NO. : 13333
DETERMINATION METHOD : ISO 11202:2010 MEASURING DATE : 17/06/2022
INSTRUMENT : Integrated Sound Level Meter RECEIVED DATE : 17/06/2022
S/N 00646443 : Type 2 REPORTED DATE : 21/06/2022

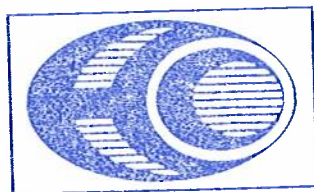
MEASURING TIME	RESULT		UNIT
	L_{eq} 1 hr.	L_{max}	
08:30-09:30	78.8	87.1	dB(A)
09:30-10:30	83.0	87.1	dB(A)
10:30-11:30	83.3	88.6	dB(A)
11:30-12:30	79.9	86.8	dB(A)
12:30-13:30	77.8	87.1	dB(A)
13:30-14:30	83.6	87.2	dB(A)
14:30-15:30	83.7	86.9	dB(A)
15:30-16:30	83.9	87.0	dB(A)
L_{eq} 8 hr.	82.3	—	dB(A)
Standard	90 ¹	140 ¹ , 115 ²	dB(A)

REMARK : ¹ Notification of The Ministry of Industry B.E. 2546 (2003)

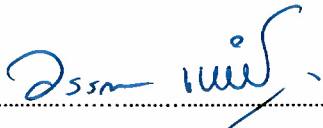
² Regulation of The Ministry of Labour B.E. 2559 (2016)

* Ms. Thanaporn Klinsopon is Section Head / Mrs. Wanpen Lhaochindawat is Technical Management

(Measurement By Mr. Wattana Khotla)



บริษัท อีสเทิร์นไทยคอนซัลติ้ง 1992 จำกัด

Approved By 
(MRS. WANPEN LHAOCHINDAWAT)

21/06/2022

REPORTED TEST REFER TO SUBMITTED SAMPLES ONLY
THIS REPORT SHALL NOT REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL LABORATORY.

TEST REPORT

CUSTOMER : GC Styrenics Company Limited
ADDRESS : 7 I-1 Rd., Map Ta Phut Industrial Estate, Map Ta Phut, Rayong 21150
SAMPLE SOURCE : GCS Plant
SAMPLE POINT : Bagging GPPS บริเวณท้าย Line
PARAMETER* : L_{eq} 1 hr., L_{eq} 8 hr. & L_{max}
DETERMINATION METHOD : In-house Method : A-DM-001
Based on ISO 11202:2010
INSTRUMENT : Integrated Sound Level Meter
S/N 01147299 : Type 2

SAMPLE NO. : 29021
MEASURING DATE : 10/12/2021
RECEIVED DATE : 10/12/2021
REPORTED DATE : 15/12/2021

MEASURING TIME	RESULT		UNIT
	L_{eq} 1 hr.	L_{max}	
08:00-09:00	73.4	84.3	dB(A)
09:00-10:00	78.6	90.8	dB(A)
10:00-11:00	75.0	84.3	dB(A)
11:00-12:00	72.3	80.2	dB(A)
12:00-13:00	68.6	79.2	dB(A)
13:00-14:00	73.9	80.1	dB(A)
14:00-15:00	75.6	81.9	dB(A)
15:00-16:00	78.2	88.3	dB(A)
L_{eq} 8 hr.	75.4	-	dB(A)
Standard	90 ^{/1}	140 ^{/1} , 115 ^{/2}	dB(A)

REMARK : ^{/1} Notification of The Ministry of Industry B.E. 2546 (2003)

^{/2} Regulation of The Ministry of Labour B.E. 2559 (2016)

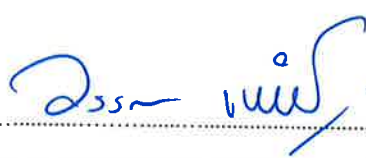
* Parameter not have License Registration of Department of Labour Protection and Welfare

(Ms. Thanatporn Klinsoon is Section Head / Mrs. Wanpen Lhaochindawat is Technical Management)

(Measurement By Mrs. Wanpen Lhaochindawat)



บริษัท อีสเทิร์นไทยคอนซัลติ้ง 1992 จำกัด

Approved By 
(MRS. WANPEN LHAOCHINDAWAT)

15/12/2021

REPORTED TEST REFER TO SUBMITTED SAMPLES ONLY

THIS REPORT SHALL NOT REPRODUCED EXCEPT IN FULL

WITHOUT THE WRITTEN APPROVAL LABORATORY

TEST REPORT

CUSTOMER : GC Styrenics Company Limited
ADDRESS : 7 I-1 Rd., Map Ta Phut Industrial Estate, Map Ta Phut, Rayong 21150
SAMPLE SOURCE : GCS Plant
SAMPLE POINT : Bagging GPPS ตรงตำแหน่งกรอกเม็ดลงถุง
PARAMETER* : L_{eq} 1 hr., L_{eq} 8 hr. & L_{max}
DETERMINATION METHOD : In-house Method : A-DM-001
Based on ISO 11202:2010
INSTRUMENT : Integrated Sound Level Meter
S/N G301660 : Type 2
SAMPLE NO. : 29022
MEASURING DATE : 10/12/2021
RECEIVED DATE : 10/12/2021
REPORTED DATE : 15/12/2021

MEASURING TIME	RESULT		UNIT
	L_{eq} 1 hr.	L_{max}	
08:00-09:00	82.1	113.9 [#]	dB(A)
09:00-10:00	82.7	86.4	dB(A)
10:00-11:00	78.7	87.5	dB(A)
11:00-12:00	76.5	88.7	dB(A)
12:00-13:00	65.1	69.5	dB(A)
13:00-14:00	76.2	86.7	dB(A)
14:00-15:00	78.0	87.6	dB(A)
15:00-16:00	82.3	88.9	dB(A)
L_{eq} 8 hr.	79.7	—	dB(A)
Standard	90 ^{/1}	140 ^{/1} , 115 ^{/2}	dB(A)

REMARK : [#] Test Report/Sampling marked 'Not TISI Accredited' in this report are not included in the TISI Accreditation Schedule for our laboratory

^{/1} Notification of The Ministry of Industry B.E. 2546 (2003)

^{/2} Regulation of The Ministry of Labour B.E. 2559 (2016)

* Parameter not have License Registration of Department of Labour Protection and Welfare

(Ms. Thanatporn Klinsoon is Section Head / Mrs. Wanpen Lhaochindawat is Technical Management)

(Measurement By Mrs. Wanpen Lhaochindawat)



Approved By

(MRS. WANPEN LHAOCHINDAWAT)

15/12/2021

บริษัท อีสเทิร์นไทยคอนซัลติง 1992 จำกัด

REPORTED TEST REFER TO SUBMITTED SAMPLES ONLY

THIS REPORT SHALL NOT REPRODUCED EXCEPT IN FULL

WITHOUT THE WRITTEN APPROVAL LABORATORY

ภาพแสดงหลังหุ้ม Insulation

