ภาคผนวก ข.32

เอกสารมาตรการลดเสียงดังบริเวณ Bagging Unit

(MOC **ติดตั้งฉนวนลดเสียงหน่วย** Conveying Unit)

Project Service Request (PSR) Form

1) Project Service Request Information

Initiator Name	Worathep S.	**Plant VP Approver**	Anupong P.
Project Categorization / Investment Type	05 Law & Regulation	**Plant**	P-PS
Initiation Date	30.11.2020	**Area / Unit**	M - THAI STYRENICS COMPANY
Project Title	Installation Insulation for pipe Conveying (Idea Mani ID : 2020-005005)		
Required Project Engineer of TPX?	YES	**Project Priority**	Medium

Background (History / Situation / Problem / Opportunity)

เนื่องจากบริเวณการขนส่งเม็ดพลาสติกมีเสียงดัง จึงพิจารณาจะติดตั้งฉนวนลดเสียง

Project Objectives

เพื่อให้บริเวณ Conveying Unit มีเสียงจากการขนส่งเม็ดพลาสติกลดต่ำลง

Proposal / Project Scope

เปรียบเทียบฉนวนลดเสียงแต่ละแบบ เพื่อติดตั้งและวัดความดังเสียงว่าลดลงได้ตามเกณฑ์ที่ตั้งไว้

Key Attachments *(Please tick if applicable)*

- ☑ Attachment 1) Process Description/Blockflow diagram/PFD/Marked-up P&ID
- ☐ Attachment 2) Plot Plan/Site Photos
- ☐ Attachment 3) Reference Incident Case (for J-Factor)
- ☐ Attachment 4) Benefit Calculation (for %IRR)

Assigned Project Manager/Engineer		**Plan KOM Date**	24.12.2020	**Proposed Budget Source**	ER (Engineering Request) Budget
		Plan Gate 1 Date		**Other *(Please specify)***	
		Plan Gate 2 Date			
		Plan Gate 3 Date		*** = Planned Date to get Gate 3 endorsement from PIC/IC*	
Note: Please complete all fields before approval by Line Manager		**Plan Finish Date**	31.10.2021	*** = Pre-Startup Safety Review (PSSR) Date**	

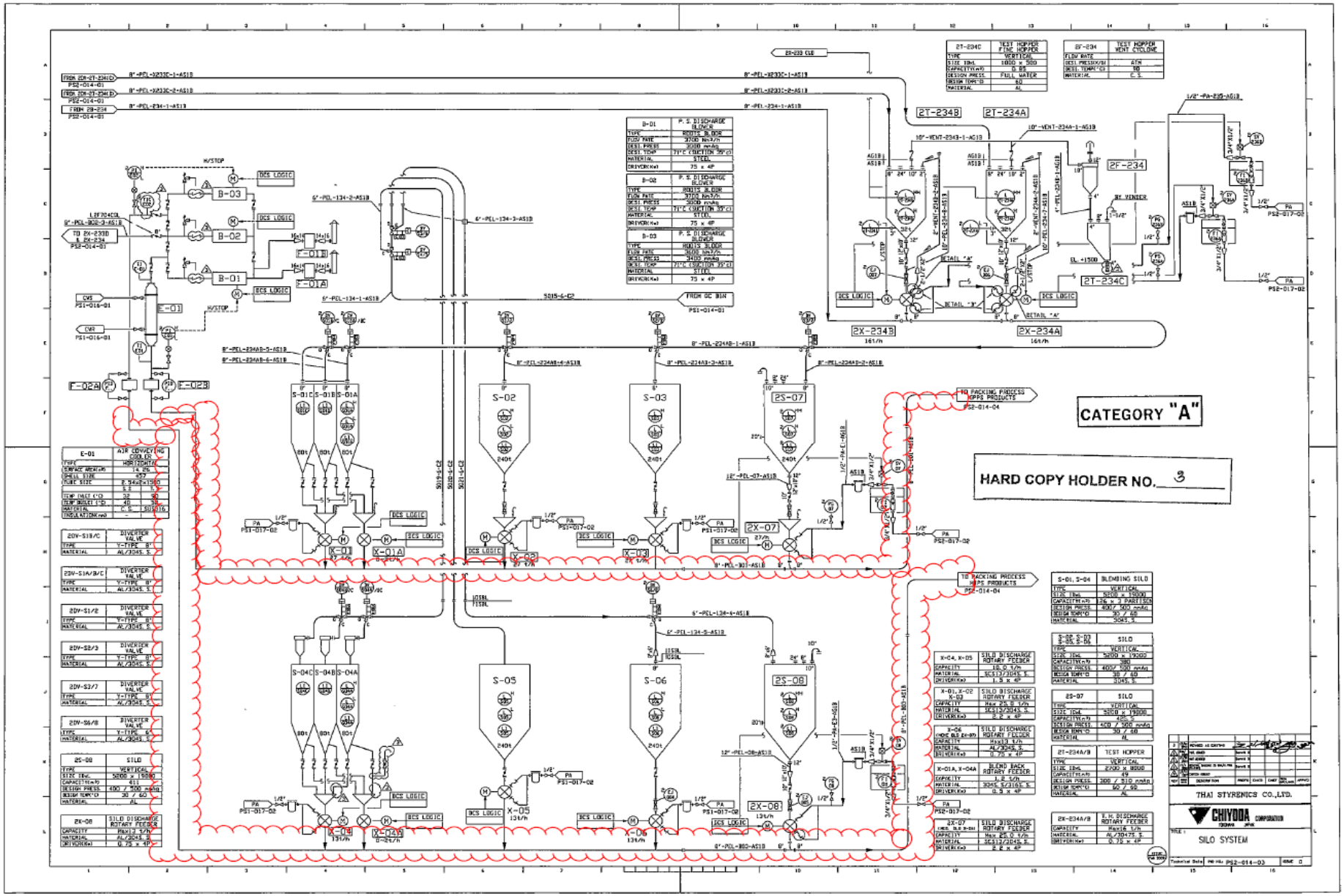
2.1) BAU (Safety, Environment and Law & Regulation) Project Categorization

RAM Assessment (Criticality)	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	4	RAM eq Cost	10,000,000 Baht(฿)	
Annual Likelihood (Use drop down menu or enter own calculation)			Expected to happen	1
Exposure Factor (Use drop down menu or enter own calculation)			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	Halving the Risk 50%	Reduction in Risk		50%
Annualized Risk of Alternative (฿/year)				**500,000**
Cost of Alternative				
Project Cost of Alternative (฿)				200,000
Production Loss during Implementation (฿)				-
Increase in Operating Costs or other economic penalties (฿)				-
Decrease in Operating Costs or other economic benefits (฿)				-
Project Life Time to convert Opex/Penalties into once off Cost(years)				-
Pay Out Time Investment Criteria, to convert benefits into economically justifiable Cost (years)				-
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 (฿)	
Project Starting Year	
Project Completion Year	
Residual Value (฿)	-
Utilities (฿/year)	-
Labour (฿/year)	-
Maintenance (% of total investment cost)	
Catalyst & Chemicals (฿/year)	-
Benefits (฿/year)	
Profit (฿/year)	-
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

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 : office@etc1992.com

NSC-TISI-TIS 17025
TESTING 0031

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	SAMPLE NO.	: 01877
		Based on ISO 11202:2010	MEASURING DATE	: 26/02/2020
INSTRUMENT	:	Integrated Sound Level Meter	RECEIVED DATE	: 26/02/2020
		S/N 01147298 : Type 2	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

Approved By .....

(MRS. WANPEN LHAOCHINDAWAT)

05/03/2020

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NSC TISI-TIS 17025
TESTING 0031

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	SAMPLE NO.	: 01878
		Based on ISO 11202:2010	MEASURING DATE	: 26/02/2020
INSTRUMENT	:	Integrated Sound Level Meter	RECEIVED DATE	: 26/02/2020
		S/N 01209917 : Type 2	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)

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NSC-ITISI-TIS 17025
TESTING 0031

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	SAMPLE NO.	:	01881
		Based on ISO 11202:2010	MEASURING DATE	:	26/02/2020
INSTRUMENT	:	Integrated Sound Level Meter	RECEIVED DATE	:	26/02/2020
		S/N 00646443 : Type 2	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)

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(Measurement By Mrs. Wanpen Lhaochindawat)

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05/03/2020

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NSC-TISI-TIS 17025
TESTING 0031

Request No. LA63-R0307

Report No. R6303-0041

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	SAMPLE NO.	: 01882
		Based on ISO 11202:2010	MEASURING DATE	: 26/02/2020
INSTRUMENT	:	Integrated Sound Level Meter	RECEIVED DATE	: 26/02/2020
		S/N 090085 : Type 2	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)

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(MRS. WANPEN LHAOCHINDAWAT)

05/03/2020

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ผลการตรวจวัดระดับเสียงบริเวณ Bagging Unit

หลังติดตั้งฉนวนลดเสียง

ACCREDITED
ISO 9001 / ISO 14001

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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 Klinsopon is Section Head / Mrs. Wanpen Lhaochindawat is Technical Management)

(Measurement By Mrs. Wanpen Lhaochindawat)

Approved By .....

(MRS. WANPEN LHAOCHINDAWAT)

15/12/2021

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NSC-TISI-TIS 17025
TESTING 0031

Request No. LA65-R0671

Report No. R6506-3049

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. Thanatporn 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

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NSC-TISI-TIS 17025
TESTING 0031

Request No. LA64-R1239

Report No. R6412-0917

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 Klinsopon 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

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NSC-TISI-TIS 17025
TESTING 0031

Request No. LA64-R1239

Report No. R6412-0918

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)

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(Ms. Thanatporn Klinsopon 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

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