บริษัท พลาสติสสิโม่ ฟิล์ม จำกัด

PLASTISSIMO FILM Co., LTD

No: RD140019O(C)

Date: 21/03/14

Sample Film Results of Origin Metals & Plastics

Descriptions of Sample

Customer Name : Origin Metals & Plastics

Data of Film

☐ Processing Film ☐ R&D Sample Film ☑ Customer Film ☐ Other .....

Sheet Plastic for Round Foam

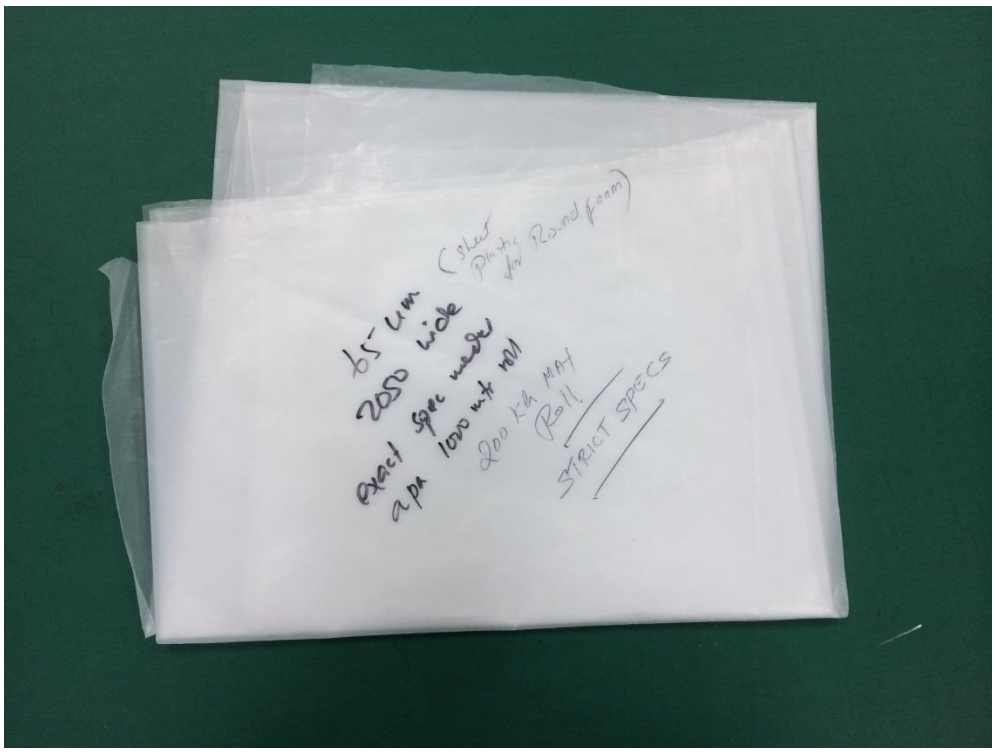

Figure 1.1 Sheet Plastic for Round Foam

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Thermal Properties

DSC Results of Sheet Plastic for Round Foam

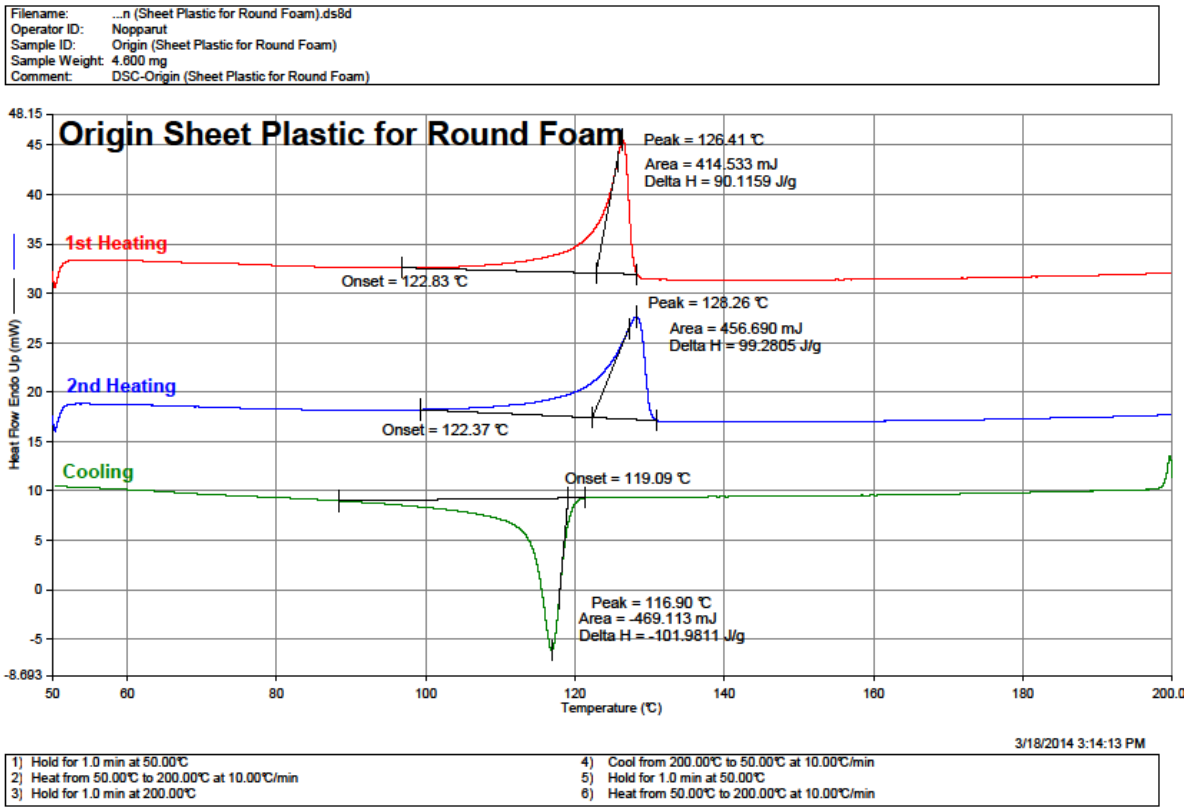

Figure 1.2 DSC curve of Sheet Plastic for Round Foam

From Figure 1.2 showed DSC results of Sheet Plastic for Round Foam which tested by Differential Scanning Calorimeter (DSC). The result shows the component of sample film as the below.

Peak at Temperature (°C)	Type of Plastic
128.26	HDPE

Mechanical Properties of Sheet Plastic for Round Foam

The mechanical properties of Sheet Plastic for Round Foam as the below.

Table 1.1 Mechanical Properties of Sheet Plastic for Round Foam

Properties		Unit	Sheet Plastic for Round Foam
Thickness		µm	48.5
Tensile Strength	MD	MPa	35.41
	TD		32.62
Elongation at Break	MD	%	765.52
	TD		874.36
Young Modulus	MD	MPa	339.70
	TD		386.38
Stiffness	MD	N/m	4993.61
	TD		5679.74
Coefficient of Friction (C.O.F)	Non-treated	Static	0.4586
		Kinetic	0.4302
Gross (45^{o})		-	8.1
Haze		%	77.7

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Side Pack

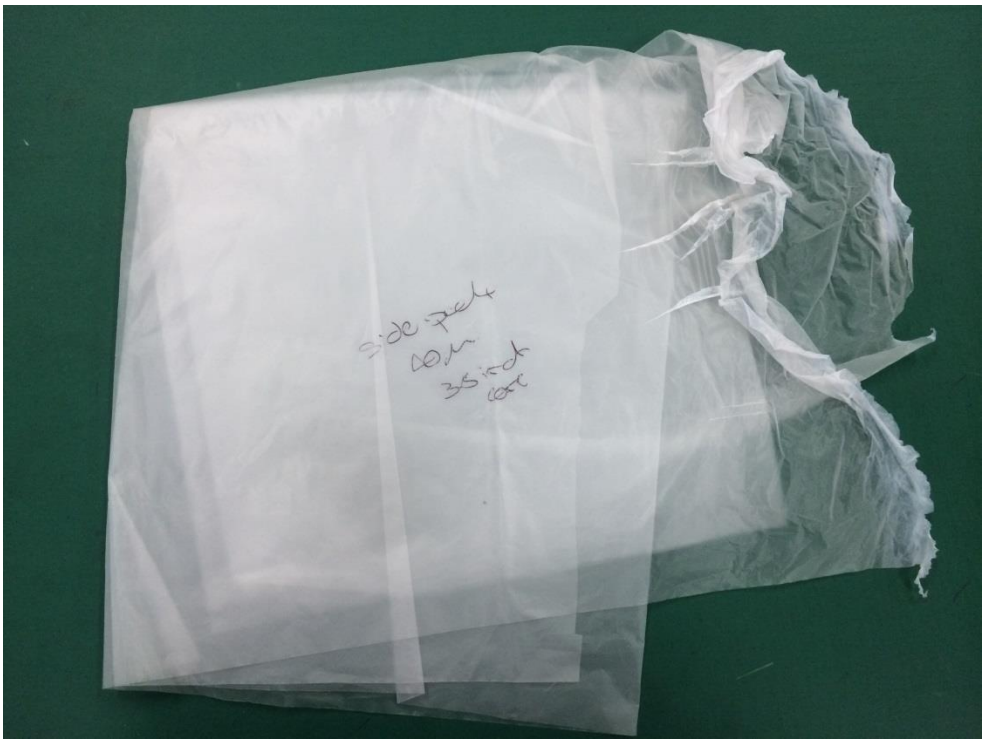

Figure 2.1 Side Pack

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Thermal Properties

DSC Results of Side Pack

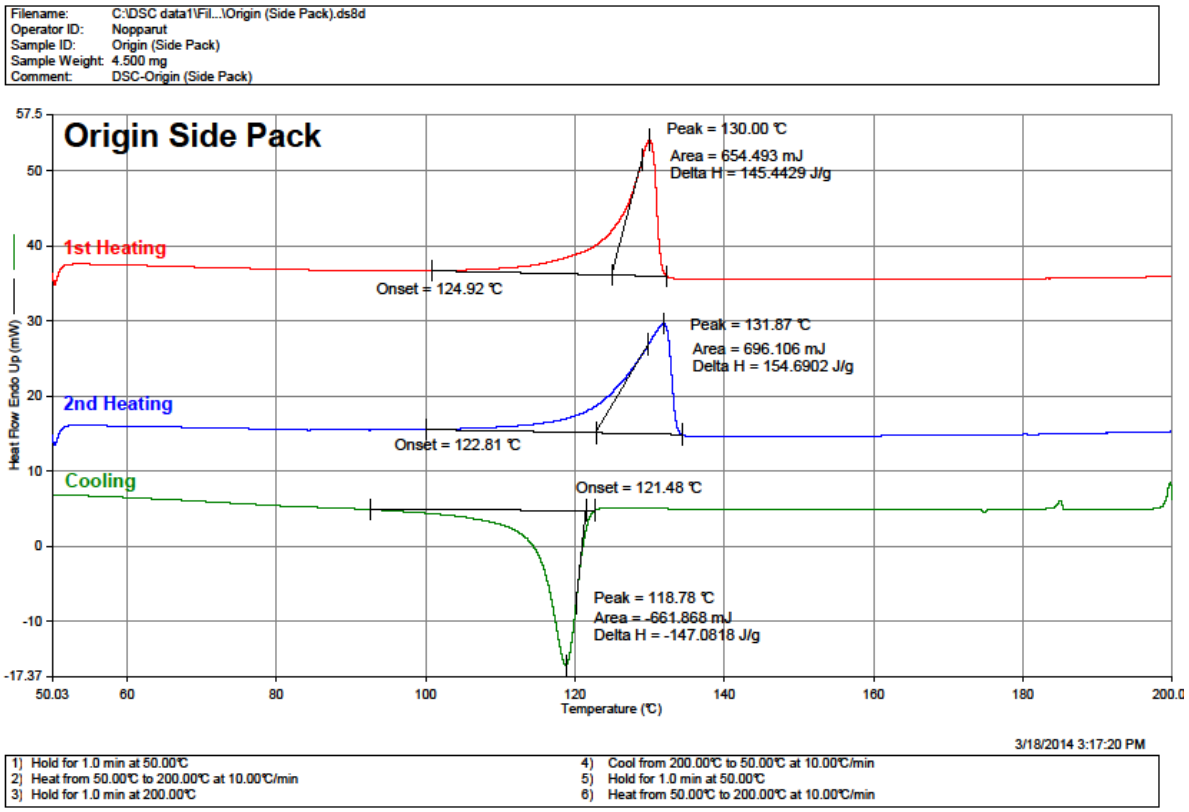

Figure 2.2 DSC curve of Side Pack

From Figure 2.2 showed DSC results of Side Pack which tested by Differential Scanning Calorimeter (DSC). The result shows the component of sample film as the below.

Peak at Temperature (^{o}C)	Type of Plastic
131.87	HDPE

Mechanical Properties of Side Pack

The mechanical properties of Side Pack as the below.

Table 2.1 Mechanical Properties of Side Pack

Properties		Unit	Side Pack
Thickness		µm	40.4
Tensile Strength	MD	MPa	46.79
	TD		35.85
Elongation at Break	MD	%	590.95
	TD		841.45
Young Modulus	MD	MPa	602.55
	TD		751.92
Stiffness	MD	N/m	7230.61
	TD		9023.10
Coefficient of Friction (C.O.F)	Non-treated	Static	0.4122
		Kinetic	0.3512
Gross (45^{o})		-	4.4
Haze		%	87.9

Bottom Plastic

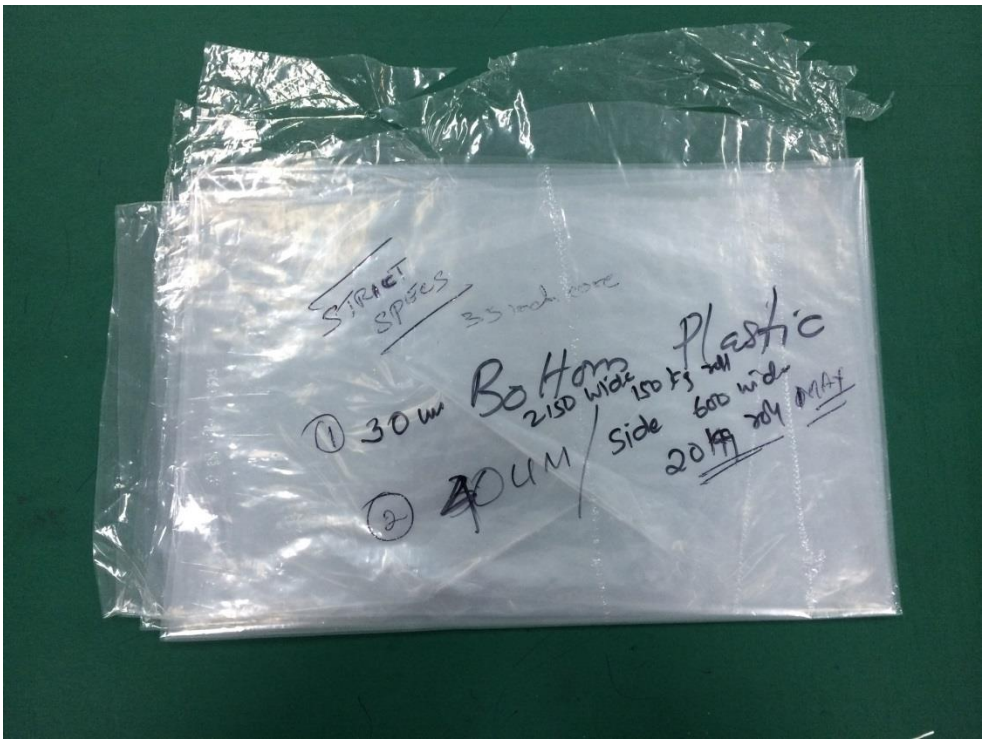

Figure 3.1 Bottom Plastic

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Thermal Properties

DSC Results of Bottom Plastic

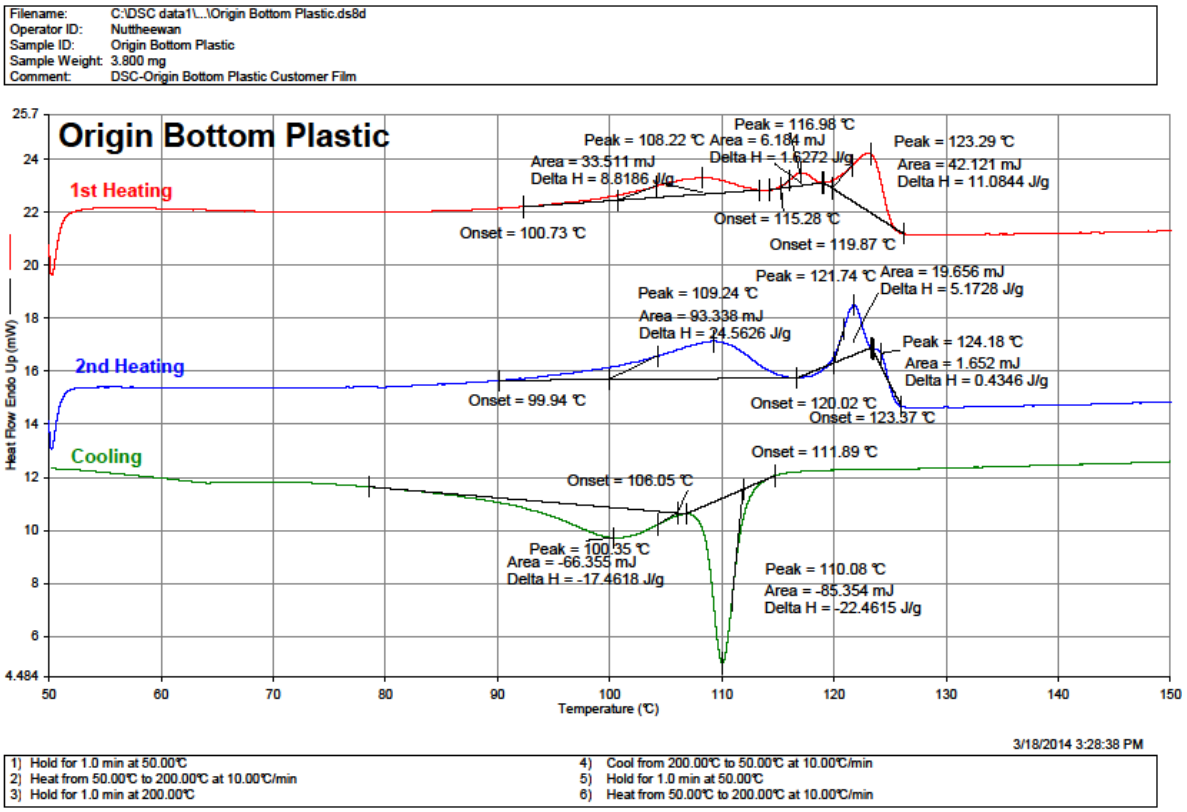

Figure 3.2 DSC curve of Bottom Plastic

From Figure 3.2 showed DSC results of Bottom Plastic by Differential Scanning Calorimeter (DSC). The result shows the component of sample film as the below.

Peak at Temperature (°C)	Type of Plastic
109.24	LDPE
121.74	LLDPE
124.18	

Mechanical Properties of Bottom Plastic

The mechanical properties of Bottom Plastic as the below.

Table 3.1 Mechanical Properties of Bottom Plastic

Properties		Unit	Bottom Plastic
Thickness		µm	26.4
Tensile Strength	MD	MPa	18.52
	TD		18.80
Elongation at Break	MD	%	320.86
	TD		695.78
Young Modulus	MD	MPa	153.28
	TD		163.02
Stiffness	MD	N/m	1195.56
	TD		1271.56
Coefficient of Friction (C.O.F)	Non-treated	Static	0.52
		Kinetic	0.50
Gross (45^{o})		-	65.9
Haze		%	7.75

Vaccum Bag

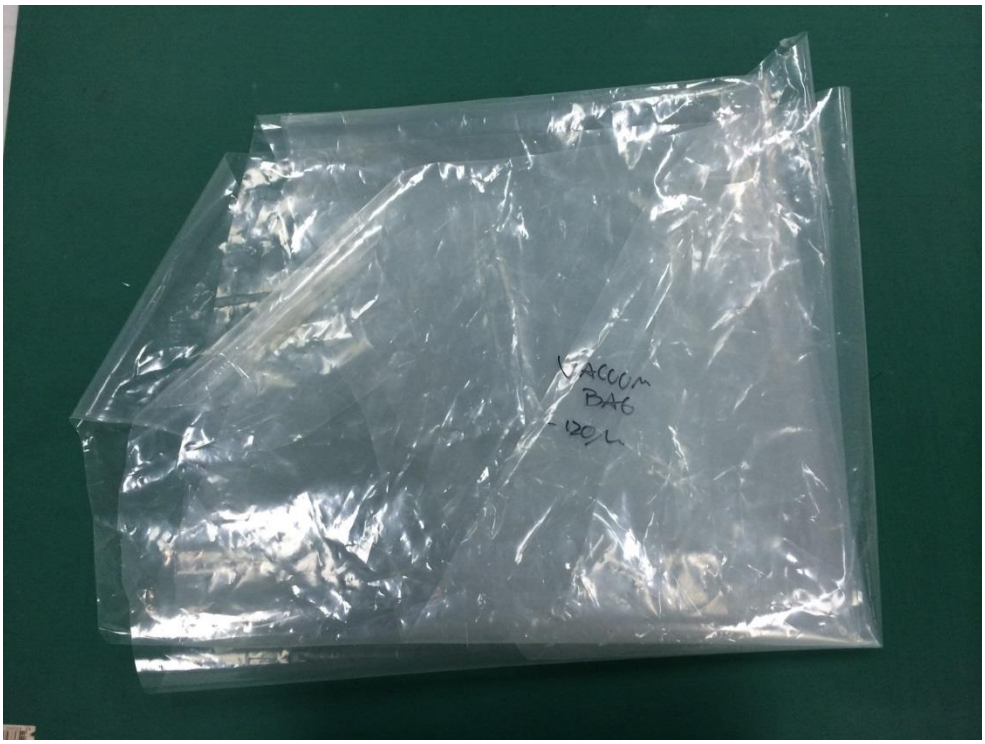

Figure 4.1 Vacuum Bag

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Thermal Properties

DSC Results of Vacuum Bag

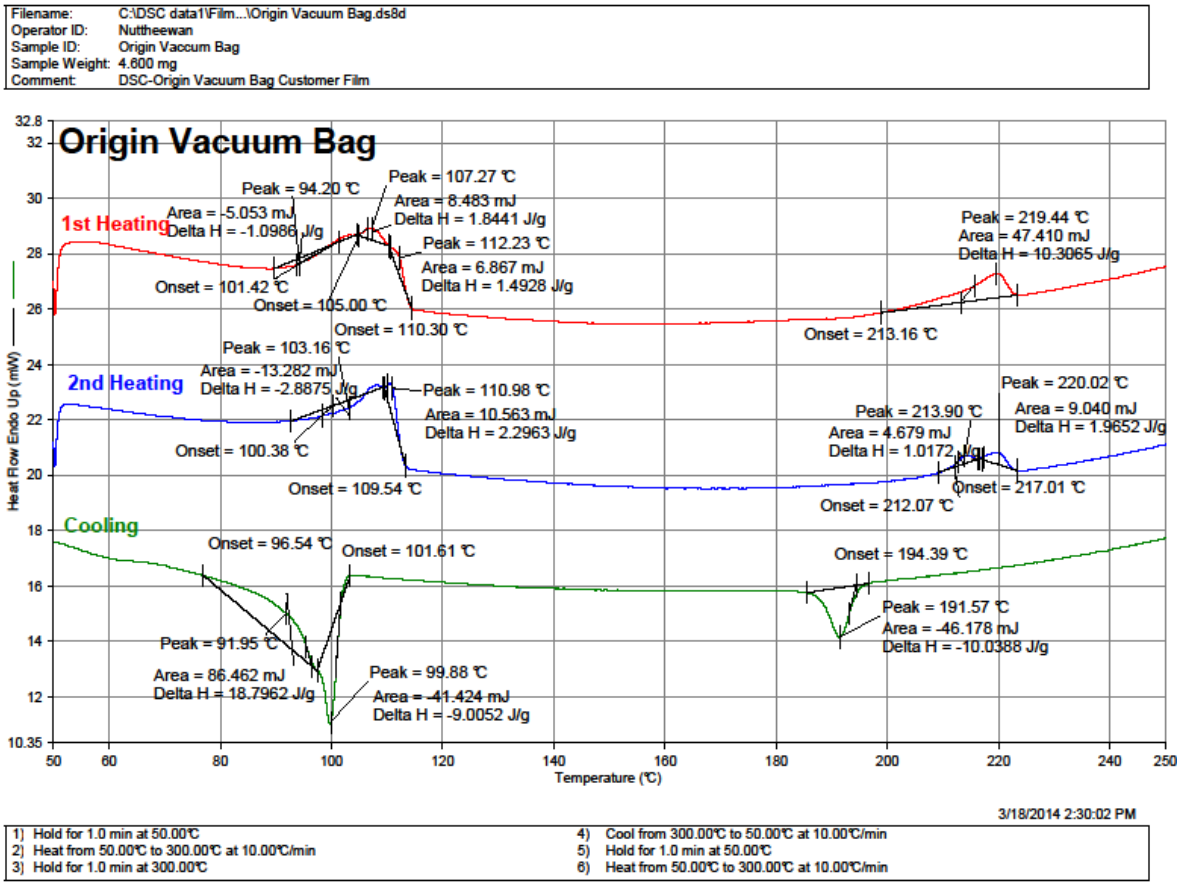

Figure 4.2 DSC curve of Vacuum Bag

From Figure 4.2 showed DSC results of Vacuum Bag which tested by Differential Scanning Calorimeter (DSC). The result shows the component of sample film as the below.

Peak at Temperature (°C)	Type of Plastic
103.16	LDPE
110.98	LLDPE
213.90	Nylon
220.02	

Mechanical Properties of Vacuum Bag

The mechanical properties of Vacuum Bag as the below.

Table 4.1 Mechanical Properties of Vacuum Bag

Properties		Unit	Vacuum Bag
Thickness		µm	108.0
Tensile Strength	MD	MPa	27.02
	TD		19.67
Elongation at Break	MD	%	290.91
	TD		443.39
Young Modulus	MD	MPa	204.96
	TD		202.53
Stiffness	MD	N/m	6640.62
	TD		6561.96
Coefficient of Friction (C.O.F)	PA side	Static	0.63
		Kinetic	0.52
	PE side	Static	0.61
		Kinetic	0.54
Gross (45^{o})		-	59.1
Haze		%	15.4

Report by : **Mr. Nopparut Kiangkitiwan**

R&D Engineer

Approve by : **Mr. Narupon Jomtip**

R&D Supervisor