

# SSEIF<sup>®</sup>-L

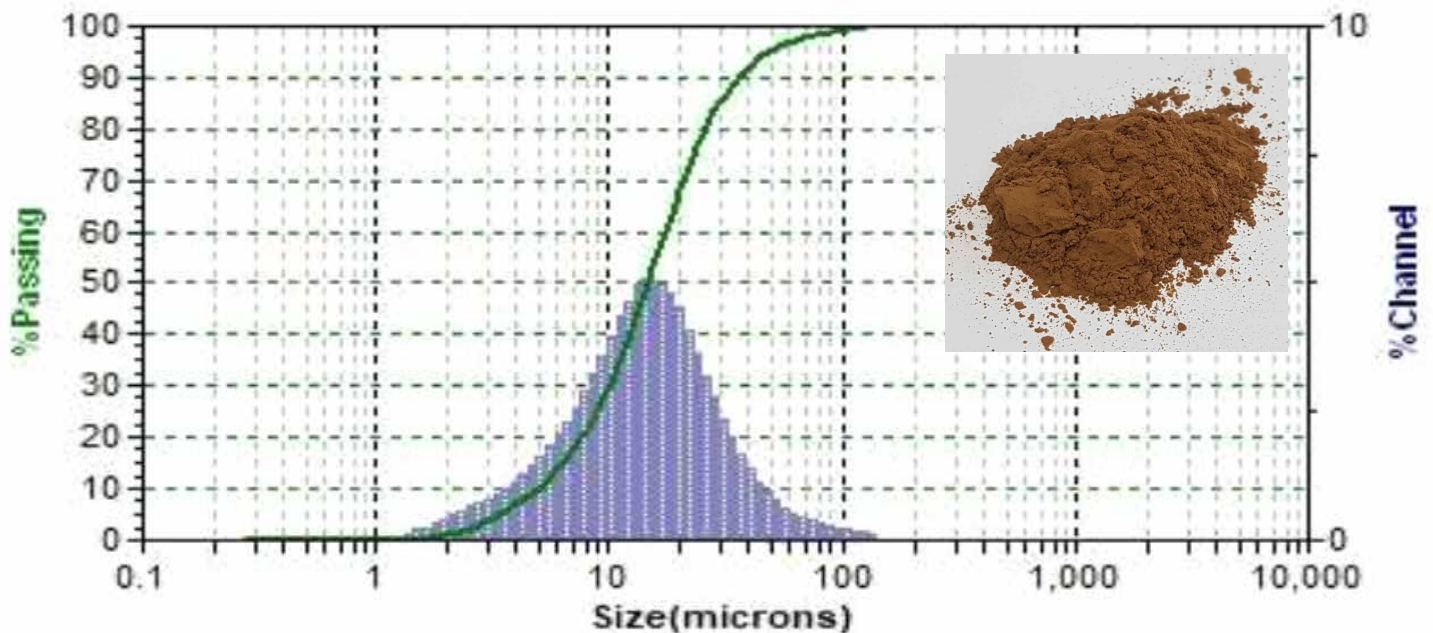
## Technical Data Sheets



## 1. Technical data sheet of SSEIF<sup>®</sup>-L

Production information	Product Name	SSEIF-L	
	Chemical Name	Lignin, modified (Lignin + Cellulose +CaSO <sub>4</sub> )	
	CAS No.	9005-53-2	
Physical property		Unit	Value
	Molecular Weight	-	Not measurable
	Density (g/cm <sup>3</sup> )	g/cm <sup>3</sup>	1.2
	Particle Refractive Index		1.52
	Appearance		Dark Brown Powder
	Decomposition Temp.	°C	>250
Specification	Sieve Residue 106 $\mu$ m	%	<1 %
	Specific Surface Area	m <sup>2</sup> /kg	727.5
	Moisture (%)		≤5 %
	pH	-	6~8
	Particle Size Dv(10)	$\mu$ m	3.46
	Particle Size Dv(50)	$\mu$ m	14.7
	Particle Size Dv(90)	$\mu$ m	35.9

## 2. Particle size distribution





#### 4. Polypropylene-SSEIF\_L Composites.

TDS 20230905 v12.0

Properties		Methods	Unit	SSEIF®-L composites								
				General			High Impact			High Stiffness, HDT		High HDT
				PP-SL5-1	PP-SL5-2	PP-SL5-T5	PP-SL5-T15	PPO-SL5-T5	PPO-SL5-T10	PPO-SL5-T20	PP-SL5-T35	PP-SL5-T15
Density		ISO 1183-1	-	0.92	0.95	0.98	1.01	0.98	0.98	1.07	1.21	1.01
Filler Content	Talc	ISO 3451	%			5	15	5	10	20	35	15
	<b>SSEIF-L</b>		%	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
MFI		ISO 1133-1	g/10min	20	8	22	30	22	22	30	10	10
Tensile Strength		ISO 527	Mpa	22	22	25	20	16	17	22	<b>33</b>	30
Tensile Elongation		ISO 527	%	-	-	-	-	-	-	-	-	-
Flexural Modulus		ISO178	Mpa	1300	1000	1900	1600	1250	1350	2000	<b>4000</b>	2300
Flexural Strength		ISO178	Mpa	35	35	40	30	22	25	30	53	40
Izod Impact Strength		ISO180(23°C)	KJ/m2	7.5	7.0	5.0	5.0	<b>25</b>	<b>29</b>	<b>25</b>	3.0	3.0
		ISO180(-10°C)	KJ/m2	3.0	-	-	2.5	-	-	-	-	-
		ISO180(-30°C)	KJ/m2	-	-	-	-	6.0	5.0	5	2.0	1.5
Charpy Impact Strength		ISO180(23°C)	KJ/m2	7.0	7.0	5.0	5.0	25	26	25	3.0	3.0
		ISO180(-10°C)	KJ/m2	3.0			2.5		-		-	
		ISO180(-30°C)	KJ/m2	-	-		-	6.0	4.0	5.0	2.0	1.5
HDT		ISO75	°C	85	80	100	95	85	90	100	138	<b>120</b>
Scratch resistance		MS210-050	△L	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	-	<b>&lt;1.0</b>

# SSEIF<sup>®</sup> - L

## Application Data Sheets



## 1. Physical Properties of Polypropylene-SSEIF-L Composites for automotive Components for VW requirements.

Properties	Methods	Units	Requirements (TL-523**-E)	Results (replaced 5wt% talc with SSEIF-L)	
				1st	2nd
Density	ISO 1183	g/cm <sup>2</sup>		0.98	0.99
Content of Filler (Talc)	ISO3451	%	16	10.4	10.5
Melt Index	ISO1133	g/10min		<b>24.6</b>	<b>22.1</b>
Tensile Strength	ISO 527	MPa		15	17
Elongation at Break	ISO 527	%		353	163
Flexural Strength	ISO 178	MPa		21	25
Flexural Modulus	ISO 178	MPa	<b>&gt;1200</b>	<b>1189</b>	<b>1373</b>
Izod Notched Impact	ISO 180/1A	KJ/m <sup>2</sup> ,(23°C)		34.8	28.5
Izod Notched Impact	ISO 180/1A	KJ/m <sup>2</sup> ,(-30°C)		5.1	4.7
Charpy Notched Impact	ISO 179/1eA	KJ/m <sup>2</sup> ,(23°C)	<b>&gt;25</b>	<b>30.7</b>	<b>25.7</b>
Charpy Notched Impact	ISO 179/1eA	KJ/m <sup>2</sup> ,(-30°C)		4.7	4.1
Rockwell Hardness	ISO 2039	-		46	54.4
HDT (Flatwise)	ISO 75/B	oC		88	93
Melting Point	ISO 11357	oC		163.5	164.5

\*Composition / Information on Ingredients of the compound resin

Chemical Name	Common Name	CAS Number	Contents
Lignocellulose	SSEIF-L	<b>9005-53-2</b>	5 wt%
Poly(ethylene-co-propylene)	Polypropylene Copolymer	9010-79-1	57 wt%
Poly(ethylene-co-1-octene)	Polyolefin Elastomer	26221-73-8	23 wt%
	Talc	14807-96-6	10 wt%
	Additives		5 wt%

## 2. Physical Properties of Polypropylene-SSEIF-L Composites for automotive Components for Ford requirements.

Properties	Methods	Units	Requirements (TPP40AE62, LyondellBasell)	Results (replaced 5wt% talc with SSEIF-L )
Density	ISO 1183	g/cm <sup>3</sup>	1.28	1.19
Content of Filler (Talc)	ISO3451	%	40	35
Melt Index	ISO1133	g/10min	7.5	10.3
Tensile Strength	ISO 527	MPa	30.5	34
Elongation at Break	ISO 527	%		
Flexural Strength	ISO 178	MPa		
Flexural Modulus	ISO 178	MPa	3400	3850
Izod Notched Impact	ISO 180/1A	KJ/m <sup>2</sup> ,(23°C)	2.8	3.8
Izod Notched Impact	ISO 180/1A	KJ/m <sup>2</sup> ,(-30°C)	1.6	2
Charpy Notched Impact	ISO 179/1eA	KJ/m <sup>2</sup> ,(23°C)		
Charpy Notched Impact	ISO 179/1eA	KJ/m <sup>2</sup> ,(-30°C)		
Rockwell Hardness	ISO 2039	-		
HDT (Flatwise-1.8Mpa)	ISO 75/A	°C	89	92
HDT (Flatwise-10.45Mpa)	ISO 75/B		135	139
Melting Point	ISO 11357	°C		

\*Composition / Information on Ingredients of the compound resin

Chemical Name	Common Name	CAS Number	Contents
Lignocellulose	SSEIF-L	9005-53-2	5 wt%
Poly(ethylene-co-propylene)	Polypropylene Copolymer	9010-79-1	54.5 wt%
Poly(ethylene-co-1-octene)	Polyolefin Elastomer	26221-73-8	-
	Talc	14807-96-6	35 wt%
	Additives		5.5 wt%

#### 4. Physical Properties of Polypropylene Composite (Talc 10% vs. SSEIF-L 10%)

Properties	Test Method	Test condition	Unit	PP*+ talc 10 wt%	PP* + SSEIF-L 10 wt%
Density	ISO 1183	-	-	0.972	0.941
Tensile strength	ISO 527	50mm/min	MPa	28.7	27.8
Elongation	ISO 527	50mm/min	%	18	14
Tensile modulus	ISO 178	50mm/min	MPa	2477	2031
Flexural Strength	ISO 178	10mm/min	MPa	44	42
Flexural Modulus	ISO 178	10mm/min	Mpa	1703	1644
IZOD Impact Strength	ISO 180/1A	RT	KJ/m <sup>2</sup>	4.4	3.7
Rockwell Hardness	ISO 2039-2	R-scale	-	96	95
HDT	ISO 75-1/-2	1.82 kgf/cm <sup>2</sup>	°C	113	116

\*Lotte Chemical J-580S



## 5. Physical Properties of SSEIF-EPDM Composite

TDS 20230905 v12.0

Property		DEP 5010	comment
SSEIF-L content (%)		9.2	
Mooney (125 °C)	Mv	39.6	
	T5	20:01	
MDR (170 °C*10min)	T <sub>max</sub>	8.5	
	T <sub>min</sub>	1.5	
	tc10	2:12	
	tc90	5:06	
170 °C @ 10 min press cured			
Test		Result	
Physical Property	Hs (Shore-A)	53	
	Tensile Strength (kg/cm <sup>2</sup> )	143	
	Elongation (%)	735	
	Density (g/cm <sup>3</sup> )	1.044	
Compression set (70 °C * 22hrs*25%)		24	170°C*20min Press Cured
Resilience (%)		56	