# **QAMAR FD21HN**

Linear Low Density Polyethylene SPDC Ltd.



## **Technical Data**

### Product Description

QAMAR FD21HN is a Linear Low Density Polyethylene material. It is available in Africa & Middle East, Asia Pacific, Europe, or North America for

Important attributes of QAMAR FD21HN are:

- Antiblock
- Clarity
- Slip

Typical application of QAMAR FD21HN: Film

General			
Material Status	Commercial: Active		
Literature <sup>1</sup>	Technical Datasheet (English)		
Availability	<ul><li> Africa &amp; Middle East</li><li> Asia Pacific</li></ul>	<ul><li>Europe</li><li>North America</li></ul>	
Additive	<ul> <li>Antiblock</li> </ul>	• Slip	
Features	<ul><li>Antiblocking</li><li>General Purpose</li></ul>	<ul><li>Medium Clarity</li><li>Slip</li></ul>	
Uses	• Film	General Purpose	
Forms	<ul> <li>Pellets</li> </ul>		
Processing Method	Blown Film		

Tensile Stress	Physical	Nominal Value Unit	Test Method
Mechanical         Nominal Value Unit         Test Method           Tensile Stress         JIS K6760           Yield         12.0 MPa           Break         26.0 MPa           Tensile Strain (Break)         900 %         JIS K6760           Apparent Bending Modulus         260 MPa         ASTM D747           Films         Nominal Value Unit         Test Method           Film Thickness - Tested         30 μm         ISO IR 1184           MD: 30 μm         190 MPa         ISO IR 1184           MD: 30 μm         190 MPa         JIS Z1702           Tensile Stress         JIS Z1702         JIS Z1702           MD: Break, 30 μm         35.0 MPa         JIS Z1702           MD: Break, 30 μm         600 %         JIS Z1702           MD: Break, 30 μm         900 %         JIS Z1702           Dart Drop Impact (30 μm)         110 g         ASTM D1709           Elmendorf Tear Strength         ASTM D1922         ASTM D1922           MD: 30 μm         140 g         ASTM D1922           MD: 30 μm         140 g         ASTM D1924           Hardness         Nominal Value Unit         Test Method           Durometer Hardness (Shore D)         54         ASTM D2240	Density	0.918 g/cm <sup>3</sup>	ASTM D1505
Tensile Stress	Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	2.0 g/10 min	ASTM D1238
Yield Break         12.0 MPa 26.0 MPa           Tensile Strain (Break)         900 %         JIS K6760           Apparent Bending Modulus         260 MPa         ASTM D747           Films         Nominal Value Unit         Test Method           Film Thickness - Tested         30 μm         ISO IR 1184           MD: 30 μm         190 MPa         150 KP           To: 30 μm         210 MPa         150 ZP           Tensile Stress         JIS Z1702           MD: Break, 30 μm         40.0 MPa         35.0 MPa           TD: Break, 30 μm         600 %         150 ZP           MD: Break, 30 μm         600 %         25 ZP           TD: Break, 30 μm         30 μm         ASTM D1709           Elmendorf Tear Strength         ASTM D1922           MD: 30 μm         30 g         ASTM D1922           MD: 30 μm         140 g         ASTM D1922           Iardess         Nominal Value Unit         Test Method           Durometer Hardness (Shore D)         54         ASTM D2240           Thermal         Nominal Value Unit         Test Method           Vicat Softening Temperature         < 70.0 °C         ASTM D746	Mechanical	Nominal Value Unit	Test Method
Break         26.0 MPa           Tensile Strain (Break)         900 %         JIS K6760           Apparent Bending Modulus         260 MPa         ASTM D747           Films         Nominal Value Unit         Test Method           Film Thickness - Tested         30 μm         ISO IR 1184           MD: 30 μm         190 MPa         TO: 30 μm         ISO IR 1184           MD: 30 μm         190 MPa         JIS Z1702           MD: Break, 30 μm         40.0 MPa         JIS Z1702           MD: Break, 30 μm         35.0 MPa         JIS Z1702           MD: Break, 30 μm         600 %         JIS Z1702           MD: Break, 30 μm         900 %         JIS Z1702           Dart Drop Impact (30 μm)         110 g         ASTM D1709           Elmendoff Tear Strength         ASTM D1709         ASTM D1709           ABTM D1922         MD: 30 μm         30 g         ASTM D1922           TD: 30 μm         140 g         ASTM D1922           ABTM D240         Test Method         Durometer Hardness (Shore D)         54         ASTM D2240           Thermal         Nominal Value Unit         Test Method           Vicat Softening Temperature         < 70.0 °C         ASTM D746	Tensile Stress		JIS K6760
Tensile Strain (Break) 900 % JIS K6760     Apparent Bending Modulus 260 MPa ASTM D747     Tensile Modulus 160 MPa ASTM D747     Tensile Modulus 170 MPa	Yield	12.0 MPa	
Apparent Bending Modulus         260 MPa         ASTM D747           Films         Nominal Value Unit         Test Method           Film Thickness - Tested         30 µm         ISO IR 1184           MD: 30 µm         190 MPa         ISO IR 1184           MD: 30 µm         210 MPa         ISO IR 1184           TD: 30 µm         210 MPa         ISO IR 1184           TEnsile Stress         JIS Z1702         JIS Z1702           MD: Break, 30 µm         40.0 MPa         JIS Z1702           MD: Break, 30 µm         600 %         JIS Z1702           MD: Break, 30 µm         600 %         JIS Z1702           MD: Break, 30 µm         900 %         ASTM D1709           Elmendorf Tear Strength         ASTM D1709         ASTM D1709           ABTM D130 µm         30 g         ASTM D1922           MD: 30 µm         30 g         TO: 30 µm         ASTM D1922           ABTM D190 µm         140 g         ASTM D1922           ABTM D240         ASTM D2240           Teermal         Nominal Value Unit         Test Method           Brittleness Temperature         < 70.0 °C	Break	26.0 MPa	
Film Thickness - Tested         30 µm           Tensile Modulus         ISO IR 1184           MD : 30 µm         190 MPa           TD : 30 µm         210 MPa           TD : 30 µm         210 MPa           Tensile Stress         JIS Z1702           MD : Break, 30 µm         40.0 MPa           TD : Break, 30 µm         35.0 MPa           Tensile Elongation         JIS Z1702           MD : Break, 30 µm         600 %           TD : Break, 30 µm         900 %           Dart Drop Impact (30 µm)         110 g         ASTM D1709           Elmendorf Tear Strength         ASTM D1922           MD : 30 µm         30 g         ASTM D1922           MD : 30 µm         140 g         Test Method           Durometer Hardness (Shore D)         54         ASTM D2240           Thermal         Nominal Value Unit         Test Method           Brittleness Temperature         < -70.0 °C	Tensile Strain (Break)	900 %	JIS K6760
Film Thickness - Tested         30 μm           Tensile Modulus         ISO IR 1184           MD : 30 μm         190 MPa           TD : 30 μm         210 MPa           Tensile Stress         JIS Z1702           MD : Break, 30 μm         40.0 MPa           TD : Break, 30 μm         35.0 MPa           Tensile Elongation         JIS Z1702           MD : Break, 30 μm         600 %           TD : Break, 30 μm         900 %           Dart Drop Impact (30 μm)         110 g         ASTM D1709           Elmendorf Tear Strength         ASTM D1922           MD : 30 μm         30 g         ASTM D1922           TD : 30 μm         140 g         Test Method           Pardness         Nominal Value Unit         Test Method           Durometer Hardness (Shore D)         54         ASTM D2240           Thermal         Nominal Value Unit         Test Method           Brittleness Temperature         < -70.0 °C	Apparent Bending Modulus	260 MPa	ASTM D747
Tensile Modulus         ISO IR 1184           MD: 30 μm         190 MPa           TD: 30 μm         210 MPa           Tensile Stress         JIS Z1702           MD: Break, 30 μm         40.0 MPa           TD: Break, 30 μm         35.0 MPa           Tensile Elongation         JIS Z1702           MD: Break, 30 μm         600 %           TD: Break, 30 μm         900 %           Dart Drop Impact (30 μm)         110 g         ASTM D1709           Elmendorf Tear Strength         ASTM D1922           MD: 30 μm         30 g         TO: 30 μm           TD: 30 μm         140 g         To: 30 μm           Hardness         Nominal Value Unit         Test Method           Durometer Hardness (Shore D)         54         ASTM D2240           Thermal         Nominal Value Unit         Test Method           Brittleness Temperature         < -70.0 °C	Films	Nominal Value Unit	Test Method
MD : 30 μm TD : 30 μm TEnsile Stress JIS Z1702 MD : Break, 30 μm TD : Break, 30 μm TD : Break, 30 μm TD : Break, 30 μm TEnsile Elongation MD : Break, 30 μm TEnsile Elongation MD : Break, 30 μm TD : 30 μ	Film Thickness - Tested	30 µm	
TD: 30 μm         210 MPa           Tensile Stress         JIS Z1702           MD: Break, 30 μm         40.0 MPa           TD: Break, 30 μm         35.0 MPa           Tensile Elongation         JIS Z1702           MD: Break, 30 μm         600 %           TD: Break, 30 μm         900 %           Dart Drop Impact (30 μm)         110 g         ASTM D1709           Elmendorf Tear Strength         ASTM D1922           MD: 30 μm         30 g         ASTM D1922           Hardness         Nominal Value Unit         Test Method           Durometer Hardness (Shore D)         54         ASTM D2240           Thermal         Nominal Value Unit         Test Method           Brittleness Temperature         < -70.0 °C	Tensile Modulus		ISO IR 1184
Tensile Stress         JIS Z1702           MD : Break, 30 μm         40.0 MPa           TD : Break, 30 μm         35.0 MPa           Tensile Elongation         JIS Z1702           MD : Break, 30 μm         600 %           Dart Break, 30 μm         900 %           Dart Drop Impact (30 μm)         110 g         ASTM D1709           Elmendorf Tear Strength         ASTM D1922           MD : 30 μm         30 g         TO : 30 μm           TD : 30 μm         140 g         Test Method           Hardness         Nominal Value Unit         Test Method           Durometer Hardness (Shore D)         54         ASTM D2240           Thermal         Nominal Value Unit         Test Method           Brittleness Temperature         < -70.0 °C	MD : 30 μm	190 MPa	
MD : Break, 30 μm TD : Break, 30 μm 35.0 MPa  Tensile Elongation MD : Break, 30 μm TD : Break, 30 μm Dart Drop Impact (30 μm)  Elmendorf Tear Strength ASTM D1709 Elmendorf Tear Strength ASTM D1922 MD : 30 μm TD : 30 μm TO : 30 μm TD : 30 μm TO :	TD : 30 µm	210 MPa	
TD : Break, 30 μm       35.0 MPa         Tensile Elongation       JIS Z1702         MD : Break, 30 μm       600 %         TD : Break, 30 μm       900 %         Dart Drop Impact (30 μm)       110 g       ASTM D1709         Elmendorf Tear Strength       ASTM D1922       ASTM D1922         MD : 30 μm       30 g       TO : 30 μm       140 g         TD : 30 μm       Nominal Value Unit       Test Method         Durometer Hardness (Shore D)       54       ASTM D2240         Thermal       Nominal Value Unit       Test Method         Brittleness Temperature       < -70.0 °C       ASTM D746         Vicat Softening Temperature       4 STM D1525	Tensile Stress		JIS Z1702
Tensile Elongation         JIS Z1702           MD : Break, 30 μm         600 %           TD : Break, 30 μm         900 %           Dart Drop Impact (30 μm)         110 g         ASTM D1709           Elmendorf Tear Strength         ASTM D1922           MD : 30 μm         30 g         ASTM D1922           TD : 30 μm         140 g         Test Method           Hardness         Nominal Value Unit         Test Method           Durometer Hardness (Shore D)         54         ASTM D2240           Thermal         Nominal Value Unit         Test Method           Brittleness Temperature         < -70.0 °C	MD : Break, 30 µm	40.0 MPa	
MD : Break, 30 μm TD : Break, 30 μm 900 %  Dart Drop Impact (30 μm) Elmendorf Tear Strength MD : 30 μm TD : 3	TD : Break, 30 µm	35.0 MPa	
TD : Break, 30 μm       900 %         Dart Drop Impact (30 μm)       110 g       ASTM D1709         Elmendorf Tear Strength       ASTM D1922         MD : 30 μm       30 g       TD : 30 μm         TD : 30 μm       140 g         Hardness       Nominal Value Unit       Test Method         Durometer Hardness (Shore D)       54       ASTM D2240         Thermal       Nominal Value Unit       Test Method         Brittleness Temperature       < -70.0 °C	Tensile Elongation		JIS Z1702
Dart Drop Impact (30 μm)110 gASTM D1709Elmendorf Tear StrengthASTM D1922MD : 30 μm30 gTD : 30 μm140 gHardnessNominal Value UnitTest MethodDurometer Hardness (Shore D)54ASTM D2240ThermalNominal Value UnitTest MethodBrittleness Temperature< -70.0 °C	MD : Break, 30 µm	600 %	
Elmendorf Tear Strength         ASTM D1922           MD : 30 μm         30 g           TD : 30 μm         140 g           Hardness         Nominal Value Unit         Test Method           Durometer Hardness (Shore D)         54         ASTM D2240           Thermal         Nominal Value Unit         Test Method           Brittleness Temperature         < -70.0 °C	TD : Break, 30 µm	900 %	
MD : 30 μm 30 g TD : 30 μm 140 g  Hardness Nominal Value Unit Test Method  Durometer Hardness (Shore D) 54 ASTM D2240  Thermal Nominal Value Unit Test Method  Brittleness Temperature <-70.0 °C ASTM D746  Vicat Softening Temperature 100 °C ASTM D1525	Dart Drop Impact (30 μm)	110 g	ASTM D1709
TD : 30 µm         140 g           Hardness         Nominal Value Unit         Test Method           Durometer Hardness (Shore D)         54         ASTM D2240           Thermal         Nominal Value Unit         Test Method           Brittleness Temperature         < -70.0 °C	Elmendorf Tear Strength		ASTM D1922
Hardness Nominal Value Unit Test Method Durometer Hardness (Shore D) 54 ASTM D2240 Thermal Nominal Value Unit Test Method Brittleness Temperature <-70.0 °C ASTM D746 Vicat Softening Temperature 100 °C ASTM D1525	MD : 30 μm	30 g	
Durometer Hardness (Shore D)  54 ASTM D2240  Thermal Nominal Value Unit Test Method  Brittleness Temperature <-70.0 °C ASTM D746  Vicat Softening Temperature 100 °C ASTM D1525	TD : 30 µm	140 g	
ThermalNominal Value UnitTest MethodBrittleness Temperature< -70.0 °C	Hardness	Nominal Value Unit	Test Method
Brittleness Temperature <-70.0 °C ASTM D746 Vicat Softening Temperature 100 °C ASTM D1525	Durometer Hardness (Shore D)	54	ASTM D2240
Vicat Softening Temperature 100 °C ASTM D1525	Thermal	Nominal Value Unit	Test Method
• .	Brittleness Temperature	<-70.0 °C	ASTM D746
Melting Temperature 122 °C DSC	Vicat Softening Temperature	100 °C	ASTM D1525
	Melting Temperature	122 °C	DSC

### **QAMAR FD21HN**

Linear Low Density Polyethylene **SPDC Ltd.** 



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Optical	Nominal Value Unit	Test Method
Haze (30.0 μm)	14 %	ASTM D1003
Extrusion	Nominal Value Unit	
Melt Temperature	170 to 190 °C	
Melt Temperature (Aim)	180 °C	
Extrusion Notes		

Blow up Ratio: 2 to 4 Screw Type: LLDPE screw Die Lip Gap: 2.0 to 3.0 mm

Air Ring: Single or Dual Slit (Wide die)

#### **Notes**

<sup>&</sup>lt;sup>1</sup> These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.

<sup>&</sup>lt;sup>2</sup> Typical properties: these are not to be construed as specifications.