ATI 6001 en

Lustran® ABS / Novodur®

Application Technology Information

Product Range Reference Data

2002-08

Bayer plastics on the Internet:
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Plastics
Business Group

Bayer

ATI 6001 en

Lustran® ABS / Novodur®

Characterization:

Lustran ABS and Novodur (Acrylonitrile-Butadiene-Styrene-Copolymer) are Bayer´s global brand names for a comprehensive ABS product range.

The Lustran ABS and Novodur grades range embraces:

- General purpose and high heat resistant injection molding grades
- Molding grades for special requirements, i.e. for the medical market, electro plating, smart cards, etc.
- Extrusion grades for sheets, profiles and tubes
- Extrusion grades for special applications, such as refrigerator liner or matte finish surfaces

Properties of Lustran ABS and Novodur:

- amorphous
- opaque
- various gloss levels
- high impact resistance
- high stiffness
- excellent flow
- heat resistance up to 113 °C according to Vicat B50
- good dimensional stability and creep resistance

Applications:

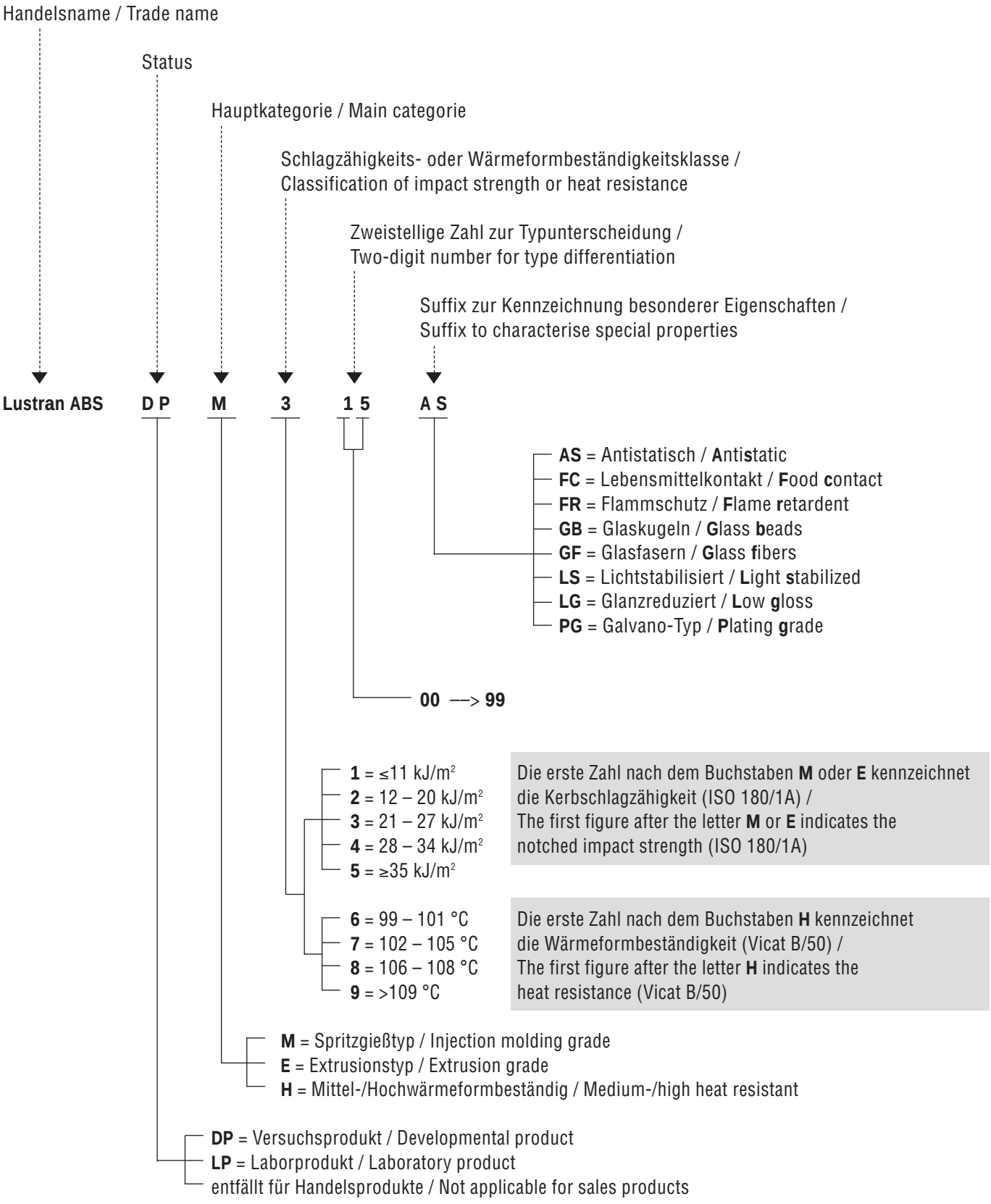
The main applications for Lustran ABS and Novodur are:
Automotive: interior and exterior trim, pillar posts, consoles, door panels, mirror housings, lamp housings
Consumer: housewares, small appliance housings, refrigerator components, floor care components, power tool housings, toys
Electrical/Electronic: modular plugs, wiring devices, consumer electronics
Information Technology: keyboards, computer housings and bezels, telephone enclosures and keys, printer housings
Medical: drug delivery systems, diagnostic equipment and instruments, test kits
Semi-finished-good: custom extruded sheets and profiles

Delivery form:

Lustran ABS and Novodur will be delivered as pellets of cubic, cylindrical or lens shape in 25kg bags, large cartons or bulk.

Lustran® ABS / Novodur®
Nomenklatur / Designations

Beispiel / Example: Lustran ABS DP M315AS



Lustran® ABS / Novodur®

Injection molding grades

General-purpose grades

Typical Properties	Test Conditions	Units	Standards	Novodur P2L-AT	Novodur P2X	Novodur P2H-AT	Novodur P3H-AT
Rheological properties							
C Melt volume-flow rate	220 °C; 10 kg	cm^3 / (10 min)	ISO 1133	45	31	37	12
C Molding shrinkage, parallel		%	ISO 294-4	0.4 - 0.6	0.4 - 0.6	0.4 - 0.6	0.4 - 0.7
C Molding shrinkage, normal		%	ISO 294-4	0.4 - 0.6	0.4 - 0.6	0.4 - 0.6	0.4 - 0.7
Mechanical properties (23 °C/50 % r.h.)							
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2700	2600	2500	2500
C Yield stress	50 mm/min	MPa	ISO 527-1,-2	45	45	44	48
C Yield strain	50 mm/min	%	ISO 527-1,-2	2.1	2.2	2.1	2.4
Stress at break	50 mm/min	MPa	ISO 527-1,-2				
Strain at break	50 mm/min	%	based on ISO 527-1,-2	> 15	> 15	>15	> 15
C Charpy impact strength	23 °C	kJ/m^2	ISO 179-1eU	70	100	100	180
C Charpy impact strength	-30 °C	kJ/m^2	ISO 179-1eU	70	80	80	90
C Charpy notched impact strength	23 °C	kJ/m^2	ISO 179-1eA	10	15	16	20
C Charpy notched impact strength	-30 °C	kJ/m^2	ISO 179-1eA	4	7	7	11
Izod notched impact strength	23 °C	kJ/m^2	ISO 180-1A	10	16	16	18
Izod notched impact strength	-30 °C	kJ/m^2	ISO 180-1A	4	7	7	10
Flexural modulus	2 mm/min	MPa	ISO 178	2550	2450	2400	2400
Flexural strength	2 mm/min	MPa	ISO 178	72	75	70	71
Ball indentation hardness		N/mm^2	ISO 2039-1	120	115	110	105
Thermal properties							
C Temperature of deflection under load	1,80 MPa	°C	ISO 75-1,-2	92	94	92	92
C Temperature of deflection under load	0,45 MPa	°C	ISO 75-1,-2	96	97	96	96
C Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	96	97	95	96
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.9	0.9	0.9	0.9
C Burning behavior UL 94 (1.6 mm)	1.6 mm	Class	UL 94	HB	HB	HB	HB
Electrical Properties (23 °C/50 % r.h.)							
C Relative permittivity	100 Hz	-	IEC 60250	3.1	3.1	3	3.1
C Relative permittivity	1 MHz	-	IEC 60250	3	2.9	2.9	2.9
C Dissipation factor	100 Hz	10^{-4}	IEC 60250	80	60	55	60
C Dissipation factor	1 MHz	10^{-4}	IEC 60250	80	80	90	80
C Volume resistivity		Ω • m	IEC 60093	1E+13	1E+13	1E+13	1E+13
C Surface resistivity		Ω	IEC 60093	1E+15	1E+15	1E+15	1E+15
C Electric strength	1 mm	kV/mm	IEC 60243-1	31	36	34	33
C Comparative tracking index CTI	Solution A	Rating	IEC 60112	600	600	600	600
Other properties (23 °C)							
C Density	-	kg/m^3	ISO 1183	1050	1050	1050	1050
Processing conditions for test specimens							
C Injection molding-Melt temperature	-	°C	ISO 294	240	240	240	240
C Injection molding-Mold temperature	-	°C	ISO 294	70	70	70	70
C Injection molding-Injection velocity	-	mm/s	ISO 294	240	240	240	240

Further Information

Processing: Brochure: Processing for the injection molder (Order no.: KU 11822 e)
Brochure: Properties and Processing (Order no.: KU 13002 e)

NB = No break
Global Grades

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Lustran® ABS / Novodur®

Injection molding grades

General-purpose grades

Typical Properties	Test Conditions	Units	Standards	Novodur P2M	Novodur P2M-AT	Lustran ABS M201	Lustran ABS M201AS
Rheological properties							
C Melt volume-flow rate	220 °C; 10 kg	cm^3/ (10 min)	ISO 1133	18	22	18	18
C Molding shrinkage, parallel		%	ISO 294-4	0.4 - 0.7	0.4 - 0.7	0.4 - 0.7	0.4 - 0.7
C Molding shrinkage, normal		%	ISO 294-4	0.4 - 0.7	0.4 - 0.7	0.4 - 0.7	0.4 - 0.7
Mechanical properties (23 °C/50 % r.h.)							
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2300	2300	2400	2400
C Yield stress	50 mm/min	MPa	ISO 527-1,-2	40	39	47	47
C Yield strain	50 mm/min	%	ISO 527-1,-2	2.2	2.1	2.5	2.5
Stress at break	50 mm/min	MPa	ISO 527-1,-2				
Strain at break	50 mm/min	%	based on ISO 527-1,-2	>15	> 15	> 15	> 15
C Charpy impact strength	23 °C	kJ/m^2	ISO 179-1eU	180	180	140	140
C Charpy impact strength	-30 °C	kJ/m^2	ISO 179-1eU	120	120	80	80
C Charpy notched impact strength	23 °C	kJ/m^2	ISO 179-1eA	22	22	19	19
C Charpy notched impact strength	-30 °C	kJ/m^2	ISO 179-1eA	11	11	10	10
Izod notched impact strength	23 °C	kJ/m^2	ISO 180-1A	23	23	20	20
Izod notched impact strength	-30 °C	kJ/m^2	ISO 180-1A	11	11	10	10
Flexural modulus	2 mm/min	MPa	ISO 178	2200	2100	2300	2300
Flexural strength	2 mm/min	MPa	ISO 178	63	62	70	70
Ball indentation hardness		N/mm^2	ISO 2039-1	100	95	105	105
Thermal properties							
C Temperature of deflection under load	1,80 MPa	°C	ISO 75-1,-2	93	93	96	96
C Temperature of deflection under load	0,45 MPa	°C	ISO 75-1,-2	98	97	100	100
C Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	97	95	98	98
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	1.0	1	0.8	0.8
C Burning behavior UL 94 (1.6 mm)	1.6 mm	Class	UL 94	HB	HB	HB	HB
Electrical Properties (23 °C/50 % r.h.)							
C Relative permittivity	100 Hz	-	IEC 60250	3	3.1	3	3
C Relative permittivity	1 MHz	-	IEC 60250	2.9	3	2.9	2.9
C Dissipation factor	100 Hz	10^{-4}	IEC 60250	50	60	60	60
C Dissipation factor	1 MHz	10^{-4}	IEC 60250	80	80	90	90
C Volume resistivity		Ω • m	IEC 60093	1E+13	1E+13	1E+13	1E+13
C Surface resistivity		Ω	IEC 60093	1E+15	1E+15	1E+15	1E+15
C Electric strength	1 mm	kV/mm	IEC 60243-1	39	33		34
C Comparative tracking index CTI	Solution A	Rating	IEC 60112	600	600	600	600
Other properties (23 °C)							
C Density	-	kg/m^3	ISO 1183	1040	1040	1050	1050
Processing conditions for test specimens							
C Injection molding-Melt temperature	-	°C	ISO 294	240	240	240	240
C Injection molding-Mold temperature	-	°C	ISO 294	70	70	70	70
C Injection molding-Injection velocity	-	mm/s	ISO 294	240	240	240	240

Further Information

Processing: Brochure: Processing for the injection molder (Order no.: KU 11822 e)
Brochure: Properties and Processing (Order no.: KU 13002 e)

NB = No break
Global Grades

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Lustran® ABS / Novodur®

Injection molding grades

General-purpose grades

Typical Properties	Test Conditions	Units	Standards	Lustran ABS M202AS	Lustran ABS M203	Lustran ABS M301	Lustran ABS M405	Lustran ABS M501
Rheological properties								
C Melt volume-flow rate	220 °C; 10 kg	cm^3 / (10 min)	ISO 1133	32	31	18	9	8
C Molding shrinkage, parallel		%	ISO 294-4	0.4 - 0.7	0.4 - 0.7	0.5 - 0.8	0.5 - 0.8	0.5 - 0.8
C Molding shrinkage, normal		%	ISO 294-4	0.4 - 0.7	0.4 - 0.7	0.5 - 0.8	0.5 - 0.8	0.5 - 0.8
Mechanical properties (23 °C/50 % r.h.)								
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2300	2400	2100	1800	2000
C Yield stress	50 mm/min	MPa	ISO 527-1,-2	44	46	42	35	40
C Yield strain	50 mm/min	%	ISO 527-1,-2	2.4	2.6	2.6	2.6	2.5
Stress at break	50 mm/min	MPa	ISO 527-1,-2					
Strain at break	50 mm/min	%	based on ISO 527-1,-2	> 15	> 15	> 15	> 15	> 15
C Charpy impact strength	23 °C	kJ/m^2	ISO 179-1eU	100	110	170	NB	200
C Charpy impact strength	-30 °C	kJ/m^2	ISO 179-1eU	80	90	120	160	140
C Charpy notched impact strength	23 °C	kJ/m^2	ISO 179-1eA	16	15	21	29	36
C Charpy notched impact strength	-30 °C	kJ/m^2	ISO 179-1eA	8	7	12	20	20
Izod notched impact strength	23 °C	kJ/m^2	ISO 180-1A	15	15	21	30	35
Izod notched impact strength	-30 °C	kJ/m^2	ISO 180-1A	8	7	12	20	20
Flexural modulus	2 mm/min	MPa	ISO 178	2300	2400	2100	1800	1950
Flexural strength	2 mm/min	MPa	ISO 178	70	70	63	55	59
Ball indentation hardness		N/mm^2	ISO 2039-1	100	110	95	75	80
Thermal properties								
C Temperature of deflection under load	1,80 MPa	°C	ISO 75-1,-2	94	94	96	94	95
C Temperature of deflection under load	0,45 MPa	°C	ISO 75-1,-2	98	98	100	98	99
C Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	99	99	99	95	95
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.9	0.9	0.9	1.1	1.0
C Burning behavior UL 94 (1.6 mm)	1.6 mm	Class	UL 94	HB	HB	HB		
Electrical Properties (23 °C/50 % r.h.)								
C Relative permittivity	100 Hz	-	IEC 60250	3	3	3	3	3
C Relative permittivity	1 MHz	-	IEC 60250	3	2.9	3	2.9	2.8
C Dissipation factor	100 Hz	10^{-4}	IEC 60250	50	50	50	50	50
C Dissipation factor	1 MHz	10^{-4}	IEC 60250	80	80	90	90	80
C Volume resistivity		Ω • m	IEC 60093	1E+13	1E+13	1E+13	1E+14	1E+14
C Surface resistivity		Ω	IEC 60093	1E+15	1E+15	1E+15	1E+16	1E+16
C Electric strength	1 mm	kV/mm	IEC 60243-1	36	35	34	33	36
C Comparative tracking index CTI	Solution A	Rating	IEC 60112	600	600	600	600	600
Other properties (23 °C)								
C Density	-	kg/m^3	ISO 1183	1050	1050	1040	1020	1030
Processing conditions for test specimens								
C Injection molding-Melt temperature	-	°C	ISO 294	240	240	240	240	240
C Injection molding-Mold temperature	-	°C	ISO 294	70	70	70	70	70
C Injection molding-Injection velocity	-	mm/s	ISO 294	240	240	240	240	240

Further Information

Processing: Brochure: Processing for the injection molder (Order no.: KU 11822 e)
Brochure: Properties and Processing (Order no.: KU 13002 e)

NB = No break
Global Grades

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Lustran® ABS / Novodur®

Injection molding grades

Heat resistant grades

Typical Properties	Test Conditions	Units	Standards	Lustran ABS H603	Lustran ABS H604	Lustran ABS H604LS	Lustran ABS H605
Rheological properties							
C Melt volume-flow rate	220 °C; 10 kg	cm^3 / (10 min)	ISO 1133	7	8	8	25
C Molding shrinkage, parallel		%	ISO 294-4	0.5 - 0.8	0.5 - 0.7	0.5 - 0.7	0.4 - 0.6
C Molding shrinkage, normal		%	ISO 294-4	0.5 - 0.8	0.5 - 0.7	0.5 - 0.7	0.4 - 0.6
Mechanical properties (23 °C/50 % r.h.)							
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2000	2400	2400	2400
C Yield stress	50 mm/min	MPa	ISO 527-1,-2	39	45	45	47
C Yield strain	50 mm/min	%	ISO 527-1,-2	2.6	2.6	2.6	2.5
Stress at break	50 mm/min	MPa	ISO 527-1,-2				
Strain at break	50 mm/min	%	based on ISO 527-1,-2	> 15	> 15	>15	> 15
C Charpy impact strength	23 °C	kJ/m^2	ISO 179-1eU	NB	180	180	90
C Charpy impact strength	-30 °C	kJ/m^2	ISO 179-1eU	130	110	110	80
C Charpy notched impact strength	23 °C	kJ/m^2	ISO 179-1eA	28	20	20	17
C Charpy notched impact strength	-30 °C	kJ/m^2	ISO 179-1eA	15	11	11	7
Izod notched impact strength	23 °C	kJ/m^2	ISO 180-1A	27	21	21	17
Izod notched impact strength	-30 °C	kJ/m^2	ISO 180-1A	14	12	12	7
Flexural modulus	2 mm/min	MPa	ISO 178	1900	2400	2400	2400
Flexural strength	2 mm/min	MPa	ISO 178	60	70	70	72
Ball indentation hardness		N/mm^2	ISO 2039-1	80	105	105	105
Thermal properties							
C Temperature of deflection under load	1,80 MPa	°C	ISO 75-1,-2	98	98	98	98
C Temperature of deflection under load	0,45 MPa	°C	ISO 75-1,-2	102	102	102	102
C Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	101	102	102	101
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.9	0.8	0.8	
C Burning behavior UL 94 (1.6 mm)	1.6 mm	Class	UL 94		HB		HB
Electrical Properties (23 °C/50 % r.h.)							
C Relative permittivity	100 Hz	-	IEC 60250	3.1	3	3	3.1
C Relative permittivity	1 MHz	-	IEC 60250	3	2.9	2.9	3
C Dissipation factor	100 Hz	10^{-4}	IEC 60250	50	50	50	50
C Dissipation factor	1 MHz	10^{-4}	IEC 60250	90	90	90	80
C Volume resistivity		Ω • m	IEC 60093	1E+14	1E+14	1E+14	
C Surface resistivity		Ω	IEC 60093	1E+16	1E+16	1E+16	
C Electric strength	1 mm	kV/mm	IEC 60243-1	34	31	31	33
C Comparative tracking index CTI	Solution A	Rating	IEC 60112	600	600	600	600
Other properties (23 °C)							
C Density	-	kg/m^3	ISO 1183	1040	1040	1040	1050
Processing conditions for test specimens							
C Injection molding-Melt temperature	-	°C	ISO 294	240	240	240	240
C Injection molding-Mold temperature	-	°C	ISO 294	70	70	70	70
C Injection molding-Injection velocity	-	mm/s	ISO 294	240	240	240	240

Further Information

Processing: Brochure: Processing for the injection molder (Order no.: KU 11822 e)
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Lustran® ABS / Novodur®

Injection molding grades

Heat resistant grades

Typical Properties	Test Conditions	Units	Standards	Lustran ABS H607AS	Lustran ABS H701	Lustran ABS H702	Lustran ABS H801
Rheological properties							
C Melt volume-flow rate	220 °C; 10 kg	cm^3 / (10 min)	ISO 1133	15	8	16	9
C Molding shrinkage, parallel		%	ISO 294-4	0.4 - 0.7	0.5 - 0.8	0.4 - 0.7	0.5 - 0.7
C Molding shrinkage, normal		%	ISO 294-4	0.4 - 0.7	0.5 - 0.8	0.4 - 0.7	0.5 - 0.7
Mechanical properties (23 °C/50 % r.h.)							
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2400	2150	2500	2400
C Yield stress	50 mm/min	MPa	ISO 527-1,-2	46	41	46	49
C Yield strain	50 mm/min	%	ISO 527-1,-2	2.5	2.7	2.6	3
Stress at break	50 mm/min	MPa	ISO 527-1,-2				
Strain at break	50 mm/min	%	based on ISO 527-1,-2	> 15	> 15	> 15	> 15
C Charpy impact strength	23 °C	kJ/m^2	ISO 179-1eU	130	180	100	220
C Charpy impact strength	-30 °C	kJ/m^2	ISO 179-1eU	90	120	90	160
C Charpy notched impact strength	23 °C	kJ/m^2	ISO 179-1eA	19	24	16	30
C Charpy notched impact strength	-30 °C	kJ/m^2	ISO 179-1eA	9	13	8	12
Izod notched impact strength	23 °C	kJ/m^2	ISO 180-1A	19	24	17	30
Izod notched impact strength	-30 °C	kJ/m^2	ISO 180-1A	9	12	8	12
Flexural modulus	2 mm/min	MPa	ISO 178	2400	2150	2450	2300
Flexural strength	2 mm/min	MPa	ISO 178	70	65	73	77
Ball indentation hardness		N/mm^2	ISO 2039-1	105	95	105	105
Thermal properties							
C Temperature of deflection under load	1,80 MPa	°C	ISO 75-1,-2	96	99	99	99
C Temperature of deflection under load	0,45 MPa	°C	ISO 75-1,-2	101	105	103	106
C Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	100	104	104	105
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.8	0.9	0.8	0.8
C Burning behavior UL 94 (1.6 mm)	1.6 mm	Class	UL 94	HB		HB	
Electrical Properties (23 °C/50 % r.h.)							
C Relative permittivity	100 Hz	-	IEC 60250	3	3.1	3.1	3.1
C Relative permittivity	1 MHz	-	IEC 60250	2.9	3	2.9	3
C Dissipation factor	100 Hz	10^{-4}	IEC 60250	50	50	50	50
C Dissipation factor	1 MHz	10^{-4}	IEC 60250	90	90	90	90
C Volume resistivity		Ω • m	IEC 60093	1E+14		1E+14	1E+14
C Surface resistivity		Ω	IEC 60093	1E+16		1E+16	1E+16
C Electric strength	1 mm	kV/mm	IEC 60243-1	31	33	36	38
C Comparative tracking index CTI	Solution A	Rating	IEC 60112	600	600	600	600
Other properties (23 °C)							
C Density	-	kg/m^3	ISO 1183	1040	1040	1040	1070
Processing conditions for test specimens							
C Injection molding-Melt temperature	-	°C	ISO 294	240	240	240	240
C Injection molding-Mold temperature	-	°C	ISO 294	70	70	70	70
C Injection molding-Injection velocity	-	mm/s	ISO 294	240	240	240	240

Further Information

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Lustran® ABS / Novodur®

Injection molding grades

Heat resistant grades

Typical Properties	Test Conditions	Units	Standards	Lustran ABS H802	Lustran ABS H803	Lustran ABS H950	Lustran ABS 5300
Rheological properties							
C Melt volume-flow rate	220 °C; 10 kg	cm^3 / (10 min)	ISO 1133	8	6	4	5
C Molding shrinkage, parallel		%	ISO 294-4	0.4 - 0.7	0.5 - 0.8	0.5 - 0.7	0.5 - 0.8
C Molding shrinkage, normal		%	ISO 294-4	0.4 - 0.7	0.5 - 0.8	0.5 - 0.7	0.5 - 0.8
Mechanical properties (23 °C/50 % r.h.)							
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2700	2400	2600	2350
C Yield stress	50 mm/min	MPa	ISO 527-1,-2	51	45	50	49
C Yield strain	50 mm/min	%	ISO 527-1,-2	2.8	2.9	2.9	2.9
Stress at break	50 mm/min	MPa	ISO 527-1,-2				
Strain at break	50 mm/min	%	based on ISO 527-1,-2	> 15	> 15	> 15	> 15
C Charpy impact strength	23 °C	kJ/m^2	ISO 179-1eU	100	140	140	NB
C Charpy impact strength	-30 °C	kJ/m^2	ISO 179-1eU	80	110	90	180
C Charpy notched impact strength	23 °C	kJ/m^2	ISO 179-1eA	15	19	16	32
C Charpy notched impact strength	-30 °C	kJ/m^2	ISO 179-1eA	7	10	7	12
Izod notched impact strength	23 °C	kJ/m^2	ISO 180-1A	15	20	17	32
Izod notched impact strength	-30 °C	kJ/m^2	ISO 180-1A	8	11	8	12
Flexural modulus	2 mm/min	MPa	ISO 178	2700	2400	2600	2300
Flexural strength	2 mm/min	MPa	ISO 178	80	71	80	77
Ball indentation hardness		N/mm^2	ISO 2039-1	115	105	110	100
Thermal properties							
C Temperature of deflection under load	1,80 MPa	°C	ISO 75-1,-2	100	100	105	99
C Temperature of deflection under load	0,45 MPa	°C	ISO 75-1,-2	106	107	112	106
C Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	109	109	113	106
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.8	0.8	0.7	0.9
C Burning behavior UL 94 (1.6 mm)	1.6 mm	Class	UL 94	HB	HB	HB	HB
Electrical Properties (23 °C/50 % r.h.)							
C Relative permittivity	100 Hz	-	IEC 60250	3.1	3	3.2	3.1
C Relative permittivity	1 MHz	-	IEC 60250	3	2.9	3	3
C Dissipation factor	100 Hz	10^{-4}	IEC 60250	60	60	60	40
C Dissipation factor	1 MHz	10^{-4}	IEC 60250	100	90	100	90
C Volume resistivity		Ω • m	IEC 60093	1E+14		1E+14	1E+14
C Surface resistivity		Ω	IEC 60093	1E+16		1E+16	1E+16
C Electric strength	1 mm	kV/mm	IEC 60243-1	34	34	37	35
C Comparative tracking index CTI	Solution A	Rating	IEC 60112	600	600		600
Other properties (23 °C)							
C Density	-	kg/m^3	ISO 1183	1050	1050	1050	1070
Processing conditions for test specimens							
C Injection molding-Melt temperature	-	°C	ISO 294	240	240	240	240
C Injection molding-Mold temperature	-	°C	ISO 294	70	70	70	70
C Injection molding-Injection velocity	-	mm/s	ISO 294	240	240	240	240

Further Information

Processing: Brochure: Processing for the injection molder (Order no.: KU 11822 e)
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Global Grades

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Lustran® ABS / Novodur®

Injection molding grades

Special grades

Typical Properties	Test Conditions	Units	Standards	Novodur P2MC	Novodur P2HGV	Novodur P2M-V
Rheological properties						
C Melt volume-flow rate	220 °C; 10 kg	cm^3 / (10 min)	ISO 1133	25	3	18
C Molding shrinkage, parallel		%	ISO 294-4	0.4 - 0.7	0.2 - 0.4	0.4 - 0.7
C Molding shrinkage, normal		%	ISO 294-4	0.4 - 0.7	0.2 - 0.4	0.4 - 0.7
Mechanical properties (23 °C/50 % r.h.)						
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2200	5500	2300
C Yield stress	50 mm/min	MPa	ISO 527-1,-2	40	74	40
C Yield strain	50 mm/min	%	ISO 527-1,-2	2.4	2	2.2
Stress at break	50 mm/min	MPa	ISO 527-1,-2			
Strain at break	50 mm/min	%	based on ISO 527-1,-2	> 15	2	> 15
C Charpy impact strength	23 °C	kJ/m^2	ISO 179-1eU	NB	18	180
C Charpy impact strength	-30 °C	kJ/m^2	ISO 179-1eU	150	20	120
C Charpy notched impact strength	23 °C	kJ/m^2	ISO 179-1eA	24	6	22
C Charpy notched impact strength	-30 °C	kJ/m^2	ISO 179-1eA	14	5	11
Izod notched impact strength	23 °C	kJ/m^2	ISO 180-1A	23	7	23
Izod notched impact strength	-30 °C	kJ/m^2	ISO 180-1A	12	5	11
Flexural modulus	2 mm/min	MPa	ISO 178	2100	5400	2200
Flexural strength	2 mm/min	MPa	ISO 178	62	101	63
Ball indentation hardness		N/mm^2	ISO 2039-1	90	135	100
Thermal properties						
C Temperature of deflection under load	1,80 MPa	°C	ISO 75-1,-2	94	102	93
C Temperature of deflection under load	0,45 MPa	°C	ISO 75-1,-2	96	106	98
C Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	95	105	97
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	1	0.4	1
C Burning behavior UL 94 (1.6 mm)	1.6 mm	Class	UL 94	HB	HB	
Electrical Properties (23 °C/50 % r.h.)						
C Relative permittivity	100 Hz	-	IEC 60250	3	2.9	3
C Relative permittivity	1 MHz	-	IEC 60250	2.9	3.1	2.9
C Dissipation factor	100 Hz	10^{-4}	IEC 60250	50	40	50
C Dissipation factor	1 MHz	10^{-4}	IEC 60250	80	60	80
C Volume resistivity		Ω • m	IEC 60093	1E+13	1E+13	1E+13
C Surface resistivity		Ω	IEC 60093	1E+15	1E+14	1E+15
C Electric strength	1 mm	kV/mm	IEC 60243-1	37	32	39
C Comparative tracking index CTI	Solution A	Rating	IEC 60112	600	575	600
Other properties (23 °C)						
C Density	-	kg/m^3	ISO 1183	1040	1160	1040
Processing conditions for test specimens						
C Injection molding-Melt temperature	-	°C	ISO 294	240	240	240
C Injection molding-Mold temperature	-	°C	ISO 294	70	70	70
C Injection molding-Injection velocity	-	mm/s	ISO 294	240	540	240

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Lustran® ABS / Novodur®

Injection molding grades

Special grades

Typical Properties	Test Conditions	Units	Standards	Lustran ABS M203FC	Lustran ABS M301FC	Lustran ABS M305
Rheological properties						
C Melt volume-flow rate	220 °C; 10 kg	cm^3 / (10 min)	ISO 1133	31	18	12
C Molding shrinkage, parallel		%	ISO 294-4	0.4 - 0.7	0.5 - 0.8	0.5 - 0.8
C Molding shrinkage, normal		%	ISO 294-4	0.4 - 0.7	0.5 - 0.8	0.5 - 0.8
Mechanical properties (23 °C/50 % r.h.)						
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2400	2100	2300
C Yield stress	50 mm/min	MPa	ISO 527-1,-2	46	42	45
C Yield strain	50 mm/min	%	ISO 527-1,-2	2.6	2.6	2.5
Stress at break	50 mm/min	MPa	ISO 527-1,-2			
Strain at break	50 mm/min	%	based on ISO 527-1,-2	> 15	> 15	> 15
C Charpy impact strength	23 °C	kJ/m^2	ISO 179-1eU	110	170	150
C Charpy impact strength	-30 °C	kJ/m^2	ISO 179-1eU	90	120	110
C Charpy notched impact strength	23 °C	kJ/m^2	ISO 179-1eA	15	21	21
C Charpy notched impact strength	-30 °C	kJ/m^2	ISO 179-1eA	7	12	11
Izod notched impact strength	23 °C	kJ/m^2	ISO 180-1A	15	21	21
Izod notched impact strength	-30 °C	kJ/m^2	ISO 180-1A	7	12	11
Flexural modulus	2 mm/min	MPa	ISO 178	2400	2100	2300
Flexural strength	2 mm/min	MPa	ISO 178	70	63	68
Ball indentation hardness		N/mm^2	ISO 2039-1	110	95	95
Thermal properties						
C Temperature of deflection under load	1,80 MPa	°C	ISO 75-1,-2	94	96	94
C Temperature of deflection under load	0,45 MPa	°C	ISO 75-1,-2	98	100	98
C Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	99	99	99
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.9	0.9	0.9
C Burning behavior UL 94 (1.6 mm)	1.6 mm	Class	UL 94			
Electrical Properties (23 °C/50 % r.h.)						
C Relative permittivity	100 Hz	-	IEC 60250	3	3	3.1
C Relative permittivity	1 MHz	-	IEC 60250	2.9	2.9	2.9
C Dissipation factor	100 Hz	10^{-4}	IEC 60250	50	50	50
C Dissipation factor	1 MHz	10^{-4}	IEC 60250	90	90	80
C Volume resistivity		Ω • m	IEC 60093	1E+13	1E+13	1E+13
C Surface resistivity		Ω	IEC 60093	1E+15	1E+15	1E+15
C Electric strength	1 mm	kV/mm	IEC 60243-1	35	34	34
C Comparative tracking index CTI	Solution A	Rating	IEC 60112	600	600	600
Other properties (23 °C)						
C Density	-	kg/m^3	ISO 1183	1050	1040	1050
Processing conditions for test specimens						
C Injection molding-Melt temperature	-	°C	ISO 294	240	240	240
C Injection molding-Mold temperature	-	°C	ISO 294	70	70	70
C Injection molding-Injection velocity	-	mm/s	ISO 294	240	240	240

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Lustran® ABS / Novodur®

Typical Properties	Test Conditions	Units	Standards	General-purpose grade	Extrusion grades – Special grades		
				Lustran ABS E401	Lustran ABS E112LG	Lustran ABS E211	Novodur P2HE
Rheological properties							
C Melt volume-flow rate	220 °C; 10 kg	cm^3 / (10 min)	ISO 1133	5	6	6	7
C Molding shrinkage, parallel		%	ISO 294-4	0.5 - 0.8	0.5 - 0.8	0.5 - 0.8	0.4 - 0.7
C Molding shrinkage, normal		%	ISO 294-4	0.5 - 0.8	0.5 - 0.8	0.5 - 0.8	0.4 - 0.7
Mechanical properties (23 °C/50 % r.h.)							
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	1900	1500	2500	2500
C Yield stress	50 mm/min	MPa	ISO 527-1,-2	40	26	45	44
C Yield strain	50 mm/min	%	ISO 527-1,-2	2.5	3.2	2.7	2.4
Stress at break	50 mm/min	MPa	ISO 527-1,-2				
Strain at break	50 mm/min	%	based on ISO 527-1,-2	> 15	> 15	> 15	> 15
C Charpy impact strength	23 °C	kJ/m^2	ISO 179-1eU	210	120	150	160
C Charpy impact strength	-30 °C	kJ/m^2	ISO 179-1eU	170	70	80	90
C Charpy notched impact strength	23 °C	kJ/m^2	ISO 179-1eA	30	9	20	19
C Charpy notched impact strength	-30 °C	kJ/m^2	ISO 179-1eA	16	8	10	11
Izod notched impact strength	23 °C	kJ/m^2	ISO 180-1A	30	8	20	19
Izod notched impact strength	-30 °C	kJ/m^2	ISO 180-1A	19	7	9	10
Flexural modulus	2 mm/min	MPa	ISO 178	1900	1500	2400	2400
Flexural strength	2 mm/min	MPa	ISO 178	60	43	73	70
Ball indentation hardness		N/mm^2	ISO 2039-1	85	65	105	110
Thermal properties							
C Temperature of deflection under load	1,80 MPa	°C	ISO 75-1,-2	94	95	101	96
C Temperature of deflection under load	0,45 MPa	°C	ISO 75-1,-2	100	100	107	100
C Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	99	98	108	99
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.9	0.9	0.8	0.9
C Burning behavior UL 94 (1.6 mm)	1.6 mm	Class	UL 94	HB			HB
Electrical Properties (23 °C/50 % r.h.)							
C Relative permittivity	100 Hz	-	IEC 60250	3.1	3	3.1	3
C Relative permittivity	1 MHz	-	IEC 60250	2.9	2.9	2.9	2.9
C Dissipation factor	100 Hz	10^{-4}	IEC 60250	50	50	50	50
C Dissipation factor	1 MHz	10^{-4}	IEC 60250	90	90	90	80
C Volume resistivity		Ω • m	IEC 60093	1E+14		1E+14	1E+13
C Surface resistivity		Ω	IEC 60093	1E+16		1E+16	1E+15
C Electric strength	1 mm	kV/mm	IEC 60243-1	35	36	35	37
C Comparative tracking index CTI	Solution A	Rating	IEC 60112	600		600	600
Other properties (23 °C)							
C Density	-	kg/m^3	ISO 1183	1040	1040	1050	1040
Processing conditions for test specimens							
C Injection molding-Melt temperature	-	°C	ISO 294	240	240	240	240
C Injection molding-Mold temperature	-	°C	ISO 294	70	70	70	70
C Injection molding-Injection velocity	-	mm/s	ISO 294	240	240	240	240

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Lustran® ABS / Novodur®

Injection molding grades

Grade	Description
	General-purpose grades
Novodur P2L-AT	very easy-flowing, high gloss, contains antistatic additive
Novodur P2X	standard impact strength, easy flowing, high gloss
Novodur P2H-AT	standard impact strength, easy flowing, high gloss, contains antistatic additive
Novodur P3H-AT	Improved chemical and dynamic resistance, contains antistatic additive, high gloss,
Novodur P2M	high impact strength, high gloss
Novodur P2M-AT	high impact strength, high gloss, contains antistatic additive
Lustran ABS M201	increased chemical resistance compared to P2X
Lustran ABS M201AS	increased chemical resistance compared to P2X , contains antistatic additive
Lustran ABS M202AS	Grade for self coloring optimized base color, easy-flowing, contains antistatic additive
Lustan ABS M203	Grade for self coloring, optimized base color, standard impact strength, easy-flowing, high gloss
Lustran ABS M301	Grade for self coloring, optimized base color, high impact strength, high gloss
Lustran ABS M405	very high impact strength, increased chemical and dynamic resistance
Lustran ABS M501	super high impact strength combined with good stiffness

Grade	Description
	Heat resistant grades
Lustran ABS H603	high impact strength
Lustran ABS H604	standard impact strength
Lustran ABS H604 LS	standard impact strength improved light stability
Lustran ABS H605	low emission, easy-flowing
Lustran ABS H607AS	contains antistatic additive
Lustran ABS H701	medium heat resistance, high impact strength
Lustran ABS H702	medium heat resistance, increased flow
Lustran ABS H801	high heat resistance, PC-modified, low emission, increased flow
Lustran ABS H802	high heat resistance, increased flow
Lustran ABS H803	high heat resistance, high impact strength
Lustran ABS H950	very high heat resistance
Lustran ABS 5300	high heat resistance, PC-modified, low emission

Grade	Description
	Special grades
Novodur P2MC	Electroplating grade
Novodur P2HGV	GF reinforced (16 %)
Novodur P2M-V	high impact strength, high gloss, low emission
Lustran ABS M203FC	standard impact strength, easy-flowing, high gloss, BgVV- and FDA quality for food contact
Lustran ABS M301FC	high impact strength, high gloss, BgVV- and FDA quality for food contact
Lustran ABS M305	grade for smart cards, good dimensional accuracy, excellent dynamic loading capacity

Extrusion grades

Grade	Description
	General-purpose grades
Lustran ABS E401	very high impact resistance, high gloss surfaces

Grade	Description
	Special grades
Lustran ABS E112LG	Extrusion grade for low gloss surfaces
Lustran ABS E211	high heat resistance
Novodur P2HE	high gloss surfaces

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