## MITSUBISHI ENGINEERING-PLASTICS CORP

ENVIRONMENT & QUALITY ASSURANCE DEPT SHIODOME SUMITOMO-BLDG 25TH FL 1-9-2 HIGASHI-SHINBASHI MINATO-KU, TOKYO 105-0021 Japan

## NOVADURAN: SEF-515T

Polybutylene Terephthalate (PBT), pellets

Flame Rating     UL 94       0.75 mm, ALL     V-0       1.5 mm, ALL     V-0       3.0 mm, ALL     V-0       Flammability Classification     IEC 60695-11-10, -20       0.75 mm, ALL     V-0       1.5 mm, ALL     V-0       3.0 mm, ALL     V-0       1.5 mm, ALL     V-0       3.0 mm, ALL     V-0       Electrical     Value     Test Method       Hot-wire Ignition (HWI)     UL 746A     UL 746A       0.75 mm     PLC 2     1.5 mm       3.0 mm     PLC 0     UL 746A       0.75 mm     PLC 0     UL 746A       Arc Resistance     PLC 0     UL 746A       Arc Resistance     PLC 0     UL 746B       0.75 mm     75.0 °C     3.0 mm       0.75 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm <th>Flammability</th> <th>Value</th> <th>Test Method</th>	Flammability	Value	Test Method
1.5 mn, ALL   V-0     3.0 mn, ALL   V-0     Flammability Classification   IEC 60695-11-10, -20     0.75 mn, ALL   V-0     1.5 mn, ALL   V-0     3.0 mn, ALL   V-0     Electrical   Value   Test Method     0.75 mn, ALL   V-0     Electrical   Value   Test Method     0.75 mm   PLC 2   1.5 mm     3.0 mm   PLC 0   UL 746A     0.75 mm   PLC 0   UL 746A     High Voltage Arc Tracking Index (CTI)   PLC 0   UL 746A     High Voltage Arc Tracking Rate (HVTR)   PLC 0   UL 746A     0.75 mm   75.0 °C   UL 746B	Flame Rating		UL 94
3.0 mm, ALL     V-0       Flammability Classification     IEC 60695-11-10, -20       0.75 mm, ALL     V-0       3.0 mm, ALL     V-0       3.0 mm, ALL     V-0       Electical     V-0       Hot-wire Ignition (HWI)     UL 746A       0.75 mm     PLC 2       1.5 mm     PLC 0       3.0 mm     PLC 0       3.0 mm     PLC 0       3.0 mm     PLC 0       3.0 mm     PLC 0       0.75 mm     PLC 0       3.0 mm     PLC 0       0.75 mm     PLC 0       Comparative Tracking Index (CTI)     PLC 0     UL 746A       Arc Resistance     PLC 5     ASTM D495       Thermal     Value     Test Method       RTI Elec     UL 746B     UL 746B       0.75 mm     75.0 °C     3.0 mm       0.75 mm     75.0 °C     3.0 mm       0.75 mm     75.0 °C	0.75 mm, ALL	V-0	
Flammability Classification     IEC 60695-11-10, -20       0.75 mm, ALL     V-0       1.5 mm, ALL     V-0       3.0 mm, ALL     V-0       Electrical       Value     Test Method       Hot-wire Ignition (HWI)     UL 746A       0.75 mm     PLC 2       1.5 mm     PLC 0       3.0 mm     PLC 0       3.0 mm     PLC 1       High Amp Arc Ignition (HAI)     UL 746A       0.75 mm     PLC 0       3.0 mm     PLC 0       3.0 mm     PLC 0       0.75 mm     PLC 0       0.75 mm     PLC 0       0.75 mm     PLC 0       0.75 mm     PLC 0       1.5 mm     PLC 0       3.0 mm     PLC 0       Comparative Tracking Index (CTI)     PLC 0     UL 746A       High Voltage Arc Tracking Rate (HVTR)     PLC 0     UL 746A       Arc Resistance     PLC 5     ASTM D495       Thermal     Value     Test Method       0.75 mm     75.0 °C     3.0 m       0.75 mm	1.5 mm, ALL	V-0	
0.75 mm, ALL   V-0     1.5 mm, ALL   V-0     3.0 mm, ALL   V-0     Identical     Value     Test Method     UL 746A     O.75 mm     O.0000     O.00000     O.000000000000000000000000000000000000	3.0 mm, ALL	V-0	
1.5 mm, ALL   V-0     3.0 mm, ALL   V-0     Electrical   Value   Test Method     Hot-wire Ignition (HWI)   UL 746A   UL 746A     0.75 mm   PLC 0   January 100 (HAI)   UL 746A     0.75 mm   PLC 0   January 100 (HAI)   UL 746A     0.75 mm   PLC 1   January 100 (HAI)   UL 746A     0.75 mm   PLC 0   January 100 (HAI)   UL 746A     0.75 mm   PLC 0   UL 746A   January 100 (HAI)     0.75 mm   PLC 0   UL 746A   January 100 (HAI)     0.75 mm   PLC 0   UL 746A   January 100 (HAI)   January 100 (HAI	Flammability Classification		IEC 60695-11-10, -20
3.0 mm, ALL     V-0       Electrical     Value     Test Method       Hot-wire Ignition (HWI)     UL 746A     UL 746A       0.75 mm     PLC 0        3.0 mm     PLC 0        High Amp Are Ignition (HAI)     UL 746A        0.75 mm     PLC 1        1.5 mm     PLC 0        3.0 mm     PLC 0        0.75 mm     PLC 0        1.5 mm     PLC 0        3.0 mm     PLC 0        0.75 mm     PLC 0     UL 746A       0.75 mm     PLC 0     UL 746A       High Voltage Arc Tracking Index (CTI)     PLC 0     UL 746A       Arc Resistance     PLC 5     ASTM D495       Thermal     Yalue     Test Method       RTI Elec     UL 746B     UL 746B       0.75 mm     75.0 °C     3.0 mm       1.5 mm     75.0 °C     3.0 mm       0.75 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm	0.75 mm, ALL	V-0	
ElectricalValueTest MethodHot-wire Ignition (HWI)UL 746A0.75 mmPLC 01.5 mmPLC 03.0 mmPLC 0High Amp Arc Ignition (HAI)UL 746A0.75 mmPLC 11.5 mmPLC 03.0 mmPLC 0Comparative Tracking Index (CTI)PLC 0UL 746AUL 746AHigh Voltage Arc Tracking Rate (HVTR)PLC 0UL 746AValueThermalValueRTI ElecUL 746B0.75 mm75.0 °C1.5 mm75.0 °C3.0 mm75.0 °CRTI ImpUL 746B0.75 mm75.0 °C1.5 mm75.0 °CNormal Mathematical Arc	1.5 mm, ALL	V-0	
Hot-wire Ignition (HWI)     UL 746A       0.75 mm     PLC 2       1.5 mm     PLC 0       3.0 mm     PLC 0       High Amp Arc Ignition (HAI)     UL 746A       0.75 mm     PLC 1       1.5 mm     PLC 0       3.0 mm     PLC 1       1.5 mm     PLC 0       3.0 mm     PLC 0       Comparative Tracking Index (CTI)     PLC 0       Comparative Tracking Rate (HVTR)     PLC 0       High Voltage Arc Tracking Rate (HVTR)     PLC 5       Arc Resistance     PLC 5       Thermal     75.0 °C       RTI Elec     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       3.0 mm     75.0 °C       RTI Imp     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       3.0 mm     75.0 °C       RTI Imp     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       3.0 mm     75.0 °C       NT 46B     0.75 mm       0.75	3.0 mm, ALL	V-0	
0.75 mm     PLC 2       1.5 mm     PLC 0       3.0 mm     PLC 0       High Amp Arc Ignition (HAI)     UL 746A       0.75 mm     PLC 1       1.5 mm     PLC 0       3.0 mm     PLC 0       0.75 mm     PLC 0       3.0 mm     PLC 0       Comparative Tracking Index (CTI)     PLC 0       High Voltage Arc Tracking Rate (HVTR)     PLC 0       High Voltage Arc Tracking Rate (HVTR)     PLC 0       High Voltage Arc Tracking Rate (HVTR)     PLC 5       Arc Resistance     PLC 5       Thermal     Value       Test Method     Mathematica       RTI Elec     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       3.0 mm     75.0 °C       NTI Imp     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       3.0 mm     75.0 °C       1.5 mm     75.0 °C       1.5 mm     75.0 °C       1.5 mm     75.0 °C       1.5 mm     75.0 °C	Electrical	Value	
1.5 mm   PLC 0     3.0 mm   PLC 0     High Amp Arc Ignition (HAI)   UL 746A     0.75 mm   PLC 1     1.5 mm   PLC 0     3.0 mm   PLC 0     Comparative Tracking Index (CTI)   PLC 0     High Voltage Arc Tracking Rate (HVTR)   PLC 0   UL 746A     Arc Resistance   PLC 5   ASTM D495     Thermal   Value   Test Method     RTI Elec   UL 746B   UL 746B     0.75 mm   75.0 °C   3.0 mm     3.0 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     3.0 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm     0.75 mm	Hot-wire Ignition (HWI)		UL 746A
3.0 mm     PLC 0       High Amp Arc Ignition (HAI)     UL 746A       0.75 mm     PLC 1       1.5 mm     PLC 0       3.0 mm     PLC 0       Comparative Tracking Index (CTI)     PLC 0     UL 746A       High Voltage Arc Tracking Rate (HVTR)     PLC 0     UL 746A       Arc Resistance     PLC 5     ASTM D495       Thermal     Value     Test Method       RTI Elec     UL 746B     UL 746B       0.75 mm     75.0 °C     3.0 mm       1.5 mm     75.0 °C     1.5 mm       3.0 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm       0.75 mm     75.0			
High Amp Arc Ignition (HAI)     UL 746A       0.75 mm     PLC 1       1.5 mm     PLC 0       3.0 mm     PLC 0       Comparative Tracking Index (CTI)     PLC 0     UL 746A       High Voltage Arc Tracking Rate (HVTR)     PLC 0     UL 746A       Arc Resistance     PLC 5     ASTM D495       Thermal     Value     Test Method       RTI Elec     UL 746B     UL 746B       0.75 mm     75.0 °C     1.5 mm       3.0 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm <td< td=""><td>1.5 mm</td><td>PLC 0</td><td></td></td<>	1.5 mm	PLC 0	
0.75 mm   PLC 1     1.5 mm   PLC 0     3.0 mm   PLC 0     Comparative Tracking Index (CTI)   PLC 0   UL 746A     High Voltage Arc Tracking Rate (HVTR)   PLC 0   UL 746A     Arc Resistance   PLC 5   ASTM D495     Thermal   Value   Test Method     RTI Elec   UL 746B   UL 746B     0.75 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   UL 746B     0.75 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm		PLC 0	
1.5 mm   PLC 0     3.0 mm   PLC 0     Comparative Tracking Index (CTI)   PLC 0   UL 746A     High Voltage Arc Tracking Rate (HVTR)   PLC 0   UL 746A     Arc Resistance   PLC 5   ASTM D495     Thermal   Value   Test Method     RTI Elec   UL 746B   UL 746B     0.75 mm   75.0 °C   1.5 mm     3.0 mm   75.0 °C   1.5 mm     RTI Imp   UL 746B   UL 746B     0.75 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     RTI Imp   UL 746B   UL 746B     0.75 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm	High Amp Arc Ignition (HAI)		UL 746A
3.0 mm   PLC 0     Comparative Tracking Index (CTI)   PLC 0   UL 746A     High Voltage Arc Tracking Rate (HVTR)   PLC 0   UL 746A     Arc Resistance   PLC 5   ASTM D495     Thermal   Value   Test Method     RTI Elec   UL 746B   UL 746B     0.75 mm   75.0 °C   1.5 mm     3.0 mm   75.0 °C   UL 746B     0.75 mm   75.0 °C   1.5 mm     3.0 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm     3.0 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     3.0 mm   75.0 °C   1.5 mm     75.0 °C   UL 746B   1.5 mm     0.75 mm   75.0 °C   1.5 mm     1.5 mm   75.0 °C   1.5 mm     0.75 mm   75.0 °C   1.5 mm			
Comparative Tracking Index (CTI)     PLC 0     UL 746A       High Voltage Arc Tracking Rate (HVTR)     PLC 0     UL 746A       Arc Resistance     PLC 5     ASTM D495       Thermal     Value     Test Method       RTI Elec     UL 746B     UL 746B       0.75 mm     75.0 °C     1.5 mm       3.0 mm     75.0 °C     UL 746B       0.75 mm     75.0 °C     1.5 mm       3.0 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm			
High Voltage Arc Tracking Rate (HVTR)     PLC 0     UL 746A       Arc Resistance     PLC 5     ASTM D495       Thermal     Value     Test Method       RTI Elec     UL 746B     UL 746B       0.75 mm     75.0 °C     1.5 mm       3.0 mm     75.0 °C     UL 746B       0.75 mm     75.0 °C     1.5 mm       3.0 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm       3.0 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       0.75 mm     75.0 °C     1.5 mm       1.5 mm     75.0 °C     1.5 mm			
Arc Resistance     PLC 5     ASTM D495       Thermal     Value     Test Method       RTI Elec     UL 746B     UL 746B       0.75 mm     75.0 °C     1       1.5 mm     75.0 °C     1       3.0 mm     75.0 °C     1       RTI Imp     0.75 mm     1       0.75 mm     75.0 °C     1       RTI Imp     UL 746B     1       0.75 mm     75.0 °C     1       1.5 mm     75.0 °C     1       0.75 mm     75.0 °C     1       1.5 mm     75.0 °C     1       1.5 mm     75.0 °C     1       RTI Str     UL 746B     1       0.75 mm     75.0 °C     1       1.5 mm     75.0 °C     1       1.5 mm     75.0 °C     1       1.5 mm     75.0 °C     1			
Thermal     Value     Test Method       RTI Elec     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       3.0 mm     75.0 °C       RTI Imp     UL 746B       0.75 mm     75.0 °C       3.0 mm     75.0 °C       RTI Imp     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       3.0 mm     75.0 °C       TI Str     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       RTI Str     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C			
RTI Elec     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       3.0 mm     75.0 °C       RTI Imp     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       RTI Smm     75.0 °C       1.5 mm     75.0 °C       3.0 mm     75.0 °C       RTI Str     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       1.5 mm     75.0 °C       1.5 mm     75.0 °C	Arc Resistance		
0.75 mm   75.0 °C     1.5 mm   75.0 °C     3.0 mm   75.0 °C     RTI Imp   UL 746B     0.75 mm   75.0 °C     1.5 mm   75.0 °C     3.0 mm   75.0 °C     1.5 mm   75.0 °C     3.0 mm   75.0 °C     1.5 mm   0.75 °C     1.5 mm   75.0 °C     1.5 mm   75.0 °C     1.5 mm   75.0 °C     1.5 mm   75.0 °C	Thermal	Value	Test Method
1.5 mm   75.0 °C     3.0 mm   75.0 °C     RTI Imp   UL 746B     0.75 mm   75.0 °C     1.5 mm   75.0 °C     3.0 mm   75.0 °C     RTI Str   UL 746B     0.75 mm   75.0 °C     RTI Str   UL 746B     0.75 mm   75.0 °C     1.5 mm   75.0 °C     1.5 mm   75.0 °C	RTI Elec		UL 746B
3.0 mm   75.0 °C     RTI Imp   UL 746B     0.75 mm   75.0 °C     1.5 mm   75.0 °C     3.0 mm   75.0 °C     RTI Str   UL 746B     0.75 mm   75.0 °C     1.5 mm   75.0 °C     1.5 mm   75.0 °C     1.5 mm   75.0 °C     1.5 mm   75.0 °C			
RTI Imp     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       3.0 mm     75.0 °C       RTI Str     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C       1.5 mm     75.0 °C       1.5 mm     75.0 °C			
0.75 mm 75.0 °C   1.5 mm 75.0 °C   3.0 mm 75.0 °C   UL 746B   0.75 mm 75.0 °C   1.5 mm 75.0 °C		75.0 °C	
1.5 mm 75.0 °C   3.0 mm 75.0 °C   RTI Str UL 746B   0.75 mm 75.0 °C   1.5 mm 75.0 °C	RTI Imp		UL 746B
3.0 mm     75.0 °C       RTI Str     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C			
RTI Str     UL 746B       0.75 mm     75.0 °C       1.5 mm     75.0 °C	1.5 mm		
0.75 mm 75.0 °C 1.5 mm 75.0 °C	3.0 mm	75.0 °C	
1.5 mm 75.0 °C			UL 746B
3.0 mm 75.0 °C			
	3.0 mm	75.0 °C	

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

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