PEEK material datasheet

Polyetheretherketone

A high-performance, semi-crystalline thermoplastic to consider for demanding chemical, thermal and wear conditions. Select the exact electrical and reinforcement grade; natural PEEK and ESD PEEK are not electrically interchangeable. [S1, S5]

Property and test	K12 Standard	K6 ESD	K2 CON	KG30 GF30	KC20 CF20
Density (g/cm³)	1.30	1.38	1.38	1.51	1.37
Tensile strength (MPa)	95	93	89	175	92.25
Flexural strength (MPa)	165	126	115	265	NR
Elongation at break (%)	28	7.5	6	2.7	1.43
HDT at 1.8 MPa (°C)	160	152	152	230	NR
Long-term temperature (°C) [T]	-/250	250	250	-/255	NR
Water absorption - air (%) [W]	0.07	0.09	0.12	0.14	NR
Water absorption - soaked (%) [W]	0.4	0.5	0.68	0.3	NR
Reported electrical band [E]	≥10^{15}	10^{6}–10^{8}	10^{3}–10^{5}	≥10^{14}	NR
UL 94 at 3 mm [F]	V-0	V-0	V-0	V-0	NR

NR = not reported. [E] Electrical quantity/units require clarification. [T] Long-term notation, [W] conditioning and [F] supplier-listed flammability are explained on the methods page. All figures are screening references, not design limits or independently verified certifications.

Applications explained — page 13

Examples include rings that control oil leakage in a transmission, bearing pads supporting a pump shaft, and holders for chips during testing. The application page explains each part's job and distinguishes general PEEK from ESD uses. [A2, A4, A22]

Grade selection and limits

K6 is the supplier ESD option; K2 is its CON option. KG30 contains nominal 30% glass fibre. KC20 contains nominal 20% carbon fibre, but its electrical band is not reported. The local K6A economy SKU has no separate verified property column.

Do not advertise a universal 260 °C rating. This table reports 250 °C for K6 and K2, while their HDT is 152 °C. These tests answer different questions; neither is an allowable stress/temperature design envelope.

Source S1, page 5. Supplier-reported values for screening; not guaranteed design limits.

PEI material datasheet

Polyetherimide

A rigid amorphous thermoplastic to consider for electrical components and parts requiring elevated-temperature performance. The standard I12, ESD I6 and CON I2 grades have different electrical behaviour. [S1, S6]

Property and test	I12 Standard	I6 ESD	I2 CON
Density (g/cm³)	1.27	1.36	1.40
Tensile strength (MPa)	95	104	115
Flexural strength (MPa)	165	175	180
Elongation at break (%)	15	10	6.5
HDT at 1.8 MPa (°C)	195	200	200
Long-term temperature (°C) [T]	-/170	180	170
Water absorption - air (%) [W]	0.75	0.76	0.8
Water absorption - soaked (%) [W]	1.35	1.37	1.4
Reported electrical band [E]	≥10^{13}	10^{6}–10^{8}	10^{3}–10^{5}
UL 94 at 3 mm [F]	V-0	V-0	V-0

NR = not reported. [E] Electrical quantity/units require clarification. [T] Long-term notation, [W] conditioning and [F] supplier-listed flammability are explained on the methods page. All figures are screening references, not design limits or independently verified certifications.

Applications explained — page 14

Examples include connector bodies that separate electrical contacts and rigid housings around warm equipment. Specialist healthcare PEI also appears in medical instrument handles, with approval specific to the formulation and process. [S6, A5]

Grade selection and limits

I12 is shown in amber/black; I6 and I2 are black. Use the I-series codes from the current supplier table. ULTEM is a SABIC trademark and must not be used as proof of this material’s resin origin.

The table lists a glass-transition temperature of 215 °C. That is not a continuous-use rating: the reported long-term temperatures are 170 °C for I12/I2 and 180 °C for I6. The source’s PEI “melting point” entry is not repeated here because PEI is amorphous.

Source S1, page 6. Supplier-reported values for screening; not guaranteed design limits.

PET material datasheet

Polyethylene terephthalate

An engineering polyester to consider for precision mechanical parts, wear components and dimensional applications. Solid engineering PET stock shapes are different products from thin clear PET packaging. [S1, S7]

Property and test	T12 Standard PET	ESD PET Separate grade required
Density (g/cm³)	1.37	Not established
Tensile strength (MPa)	85.9	Not established
Flexural strength (MPa)	111.8	Not established
Elongation at break (%)	11.1	Not established
HDT at 1.8 MPa (°C)	95	Not established
Long-term temperature (°C) [T]	100	Not established
Water absorption - air (%) [W]	0.25	Not established
Water absorption - soaked (%) [W]	0.5	Not established
Reported electrical band [E]	≥10^{12}	Not established
UL 94 at 3 mm [F]	HB	Not established

NR = not reported. [E] Electrical quantity/units require clarification. [T] Long-term notation, [W] conditioning and [F] supplier-listed flammability are explained on the methods page. All figures are screening references, not design limits or independently verified certifications.

Applications explained — page 15

Examples include rails that keep containers aligned on a conveyor, sleeves that support rotating shafts, and grippers that hold products during transfer. ESD PET is also used by other manufacturers in chip-test equipment. [A6, A4]

Grade selection and limits

T12 is listed in white/black. The supplier’s public catalogue mentions ESD PET, but the supplied 12-page table contains only T12. ESD PET therefore remains an inquiry option with no assigned code or numerical rating in this reference. [S8]

T12 properties do not establish ESD PET performance. No ESD PET service temperature or specific ESD grade code is verified here. Food-contact approval also requires documentation for the exact grade and use.

Source S1, page 7. Supplier-reported values for screening; not guaranteed design limits.

POM ESD and CON datasheet

Polyoxymethylene or acetal

POM grades are candidates for machined handling components and precision mechanical parts. The supplier's M6 beige/white and M6 black columns have distinct properties; keep them separate. [S1]

Property and test	M6 Beige / white	M6 Black	M2 CON black
Density (g/cm³)	1.37	1.38	1.44
Tensile strength (MPa)	43	39	40
Flexural strength (MPa)	59	56	57.6
Elongation at break (%)	86	110	26
HDT at 1.8 MPa (°C)	95	95	95
Long-term temperature (°C) [T]	105/90	105/90	110/95
Water absorption - air (%) [W]	0.8	0.5	0.25
Water absorption - soaked (%) [W]	3.5	2	0.9
Reported electrical band [E]	10^6–10^8	10^6–10^8	10^3–10^5
UL 94 at 3 mm [F]	HB	HB	HB

NR = not reported. [E] Electrical quantity/units require clarification. [T] Long-term notation, [W] conditioning and [F] supplier-listed flammability are explained on the methods page. All figures are screening references, not design limits or independently verified certifications.

Applications explained — page 16

Examples include shaped pockets that hold electronics during assembly, trays that carry components between stations, and rails that guide moving parts. ESD POM adds static control to these handling roles. [A8, A9]

Grade selection and limits

The local SKU list distinguishes M6N natural/NFP, M6W white and M6B black. The supplier table groups beige/white under M6; this does not establish that every white or natural grade has the same formulation or NFP performance. [S9]

NFP is a supplier designation, not a particle test result. Do not promise zero shedding or cleanroom classification. Request formulation confirmation and particle measurements after machining and cleaning.

Source S1, page 8. Supplier-reported values for screening; not guaranteed design limits.

PA ESD and CON datasheet

Polyamide 6 or nylon 6

PA6 is a candidate for wear and mechanical components where toughness matters. Moisture uptake can affect size and mechanical performance, making conditioning a key sales and design question. [S1]

Property and test	A6 ESD PA6 black	A2 CON PA6 black
Density (g/cm³)	1.17	1.20
Tensile strength (MPa)	80	60
Flexural strength (MPa)	110	105
Elongation at break (%)	5	5
HDT at 1.8 MPa (°C)	80	75
Long-term temperature (°C) [T]	90/75	95/80
Water absorption - air (%) [W]	2.4	2.2
Water absorption - soaked (%) [W]	8.3	7.5
Reported electrical band [E]	10^6–10^8	10^3–10^5
UL 94 at 3 mm [F]	HB	HB

NR = not reported. [E] Electrical quantity/units require clarification. [T] Long-term notation, [W] conditioning and [F] supplier-listed flammability are explained on the methods page. All figures are screening references, not design limits or independently verified certifications.

Applications explained — page 17

Examples include pulleys that guide cables, gears that transfer rotation, and replaceable pads that guide a sliding carriage. Nylon can suit repeated mechanical contact; moisture uptake matters when the part must fit precisely. [A11, A23]

Grade selection and limits

A6 and A2 are PA6 variants. Standard PA6 and PA66 both appear as A12 in the source, so the base code alone is insufficient. Confirm polymer, colour, electrical grade and supplied form.

A2 reports an electrical range of 10^3–10^5, which crosses the general conductive/dissipative boundary. Confirm the measured electrical quantity and its units. Use technical density, not a commercial weight-calculation allowance.

Source S1, page 2. Supplier-reported values for screening; not guaranteed design limits.

ABS ESD material datasheet

Acrylonitrile butadiene styrene

An ESD ABS grade to consider for machined housings, covers and fixtures with modest mechanical and thermal requirements. Confirm the exact colour and formulation in the quotation. [S1]

Property and test	B6 ESD ABS beige / black
Density (g/cm³)	1.07
Tensile strength (MPa)	37
Flexural strength (MPa)	46
Elongation at break (%)	35
HDT at 1.8 MPa (°C)	80
Long-term temperature (°C) [T]	NR
Water absorption - air (%) [W]	0.5
Water absorption - soaked (%) [W]	0.75
Reported electrical band [E]	10^6–10^8
UL 94 at 3 mm [F]	HB

NR = not reported. [E] Electrical quantity/units require clarification. [T] Long-term notation, [W] conditioning and [F] supplier-listed flammability are explained on the methods page. All figures are screening references, not design limits or independently verified certifications.

Applications explained — page 18

Examples include appliance housings, covers around electronics, and ESD trays or boxes that carry components through a factory. The material's role is often to enclose, protect or organise a product. [A12, A13]

Grade selection and limits

The source groups beige and black in one B6 property column. Confirm that the local B6N natural SKU corresponds to the beige formulation; separate colour-specific test results are not supplied. Standard B12, flame-retardant BR12 and PC-blend BC12 are different grades. [S9]

B6 is rated HB in the supplied table; the V-0 entry belongs to BR12 FR ABS. The long-term temperature for B6 is blank. HDT 80 °C must not be presented as a continuous-service rating.

Source S1, page 1. Supplier-reported values for screening; not guaranteed design limits.

PPS ESD material datasheet

Polyphenylene sulfide

PPS is a high-performance family for thermal and chemical exposure. The S6 column is explicitly ESD PPS; standard S12 and glass-filled SG12 have different properties. [S1]

Property and test	S6 ESD PPS black
Density (g/cm³)	1.35
Tensile strength (MPa)	40
Flexural strength (MPa)	57
Elongation at break (%)	15
HDT at 1.8 MPa (°C)	250
Long-term temperature (°C) [T]	220
Water absorption - air (%) [W]	NR
Water absorption - soaked (%) [W]	NR
Reported electrical band [E]	10^6–10^8
UL 94 at 3 mm [F]	V-0

NR = not reported. [E] Electrical quantity/units require clarification. [T] Long-term notation, [W] conditioning and [F] supplier-listed flammability are explained on the methods page. All figures are screening references, not design limits or independently verified certifications.

Applications explained — page 19

Examples include valve parts that control liquid flow, pump components that face process fluids, and rings that hold semiconductor wafers during polishing. These family applications need their own grade and operating-condition review. [A14, A15]

Grade selection and limits

S6 is the ESD grade. Do not replace it with standard PPS or PPS GF40 on the assumption that heat resistance also establishes ESD behaviour.

The 250 °C HDT and 220 °C long-term entries are transcribed from the S6 column. The strong HDT change relative to standard S12 warrants supplier confirmation before temperature-led selling. S6 moisture values are blank, not zero.

Source S1, page 10. Supplier-reported values for screening; not guaranteed design limits.

PTFE ESD material datasheet

Polytetrafluoroethylene

The F6 ESD PTFE grade is a candidate for low-friction and chemical-service applications. Treat structural creep and electrical qualification as separate checks. [S1]

Property and test	F6 ESD PTFE black
Density (g/cm³)	2.22
Tensile strength (MPa)	NR
Flexural strength (MPa)	NR
Elongation at break (%)	>50
HDT at 1.8 MPa (°C)	121
Long-term temperature (°C) [T]	-/260
Water absorption - air (%) [W]	0.02
Water absorption - soaked (%) [W]	0.04
Reported electrical band [E]	10^6–10^8
UL 94 at 3 mm [F]	V-0

NR = not reported. [E] Electrical quantity/units require clarification. [T] Long-term notation, [W] conditioning and [F] supplier-listed flammability are explained on the methods page. All figures are screening references, not design limits or independently verified certifications.

Applications explained — page 20

Examples include sealing rings in fluid equipment, seats that close around a valve ball, and sleeves that provide a sliding contact surface. Specialist static-control PTFE is also used for seals in tablet-manufacturing equipment. [A16, A17]

Grade selection and limits

F6 is the grade actually covered by the supplied table. The local product notes treat virgin non-ESD PTFE as a separately sourced item. Do not use F6 data for unfilled PTFE. [S9]

The source reports the electrical band 10^6–10^8, with units requiring clarification. Tensile and flexural strength are not reported. The long-term 260 °C entry does not imply dimensional load capacity at 260 °C.

Source S1, page 11. Supplier-reported values for screening; not guaranteed design limits.

PU electrical grade reference

Polyurethane

The source labels these columns PU and PU+GF, while reporting ESD-like electrical bands for both. This is a qualification reference: confirm formulation and actual electrical performance before offering either as an ESD product. [S1]

Property and test	U6 PU	GU6 PU+GF in source
Density (g/cm³)	1.08	1.0/- [Q]
Tensile strength (MPa)	3.5	NR
Flexural strength (MPa)	NR	539 [Q]
Elongation at break (%)	≥300	NR
HDT at 1.8 MPa (°C)	NR	NR
Long-term temperature (°C) [T]	NR	NR
Water absorption - air (%) [W]	NR	-/0.07 [Q]
Water absorption - soaked (%) [W]	NR	NR
Reported electrical band [E]	10^6–10^8	10^6–10^8
UL 94 at 3 mm [F]	HB	HB

NR = not reported. [E] Electrical quantity/units require clarification. [T] Long-term notation, [W] conditioning and [F] supplier-listed flammability are explained on the methods page. All figures are screening references, not design limits or independently verified certifications.

Applications explained — page 21

Examples include rollers that grip and feed paper or film, pads that cushion repeated contact, and wheel treads for equipment carts. Specialist ESD polyurethane adds electrical control to selected rollers and wheels. [A18, A19, A20]

Grade selection and limits

The local list calls U6 transparent and GU6 industrial white; the table says transparent/black and PU+GF. Confirm colour, reinforcement and matching product identity. [S9] U6 reports Shore A hardness 80 ±2. Shore A and Shore D values are not directly comparable. [S1]

[Q] GU6 has ambiguous split values and an unusually high 539 MPa flexural-strength entry. These are source entries requiring correction, not validated selling figures. Thermal limits are absent for both grades.

Source S1, page 12. Supplier-reported values for screening; not guaranteed design limits.

ESD variants needing more data

Cover the full enquiry without inventing a specification

The supplied physical table supports ESD-labelled ABS, PA6, PEEK, PEI, POM, PPS and PTFE. PU also has electrical bands, with significant data questions. Additional catalogue or local SKU references below need their own grade data.

Reference	What is known	Before quoting performance
ESD PET	Mentioned in NOEGEM public catalogue; absent from its supplied PET table. [S8]	Exact code, colour, electrical report, mechanical data and thermal limits.
ESD PC	Public catalogue mentions ESD PC; supplied PC columns are C12, CG12 and CR12. [S1, S8]	Confirm whether bulk-modified or surface-treated; obtain matched grade data.
ESD / CON UPE or UHMW-PE	Mentioned in public catalogue; no matching table in the supplied PDF. [S8]	Confirm polymer, code, resistance, wear, temperature and supply.
PEEK K6A economy	Present in the local SKU list. [S9]	Separate datasheet and comparison with K6; do not inherit K6 values.
POM M6N / M6W / NFP	Local SKU distinctions exceed the PDF's beige/white grouping. [S1, S9]	Map colour/formulation to the measured column and obtain particle tests.
ABS B6N natural	PDF groups beige/black under B6; the local list calls B6N natural. [S1, S9]	Map the natural SKU to the beige formulation and request colour-specific electrical results.

How to describe these options

Use “ESD grade available for technical enquiry; specification and supply subject to confirmation.” Do not publish numerical performance, equivalence to another brand, local availability or cleanroom approval until the exact product has supporting evidence.

Scope of this reference

“All ESD variants” here means all variants identified in the supplied property table, local SKU list and checked public catalogue. It is not a claim to exhaust every current or custom formulation offered by the manufacturer.

How to read these datasheets

Keep the property, test and application separate

Electrical quantities need corrected units

The supplier labels “surface resistivity” in Ω·cm and “mass resistivity” in Ω. This is inconsistent with conventional usage: surface resistance is measured in Ω; surface resistivity is commonly expressed in Ω or Ω/square; volume resistivity is expressed in Ω·cm or Ω·m. The numerical bands are reproduced without silently relabelling them.

Request the original test report with electrical quantity, units, electrode arrangement, voltage, specimen geometry, conditioning, test locations and results. A supplier label such as ESD or CON is not an acceptance test. [S1, S2, S3]

General resistance class [S2]	Resistance R
Conductive	$R < 10^4\ \Omega$
Dissipative	$10^4\ \Omega \le R < 10^{11}\ \Omega$
Insulative	$R \ge 10^{11}\ \Omega$

These general classes do not replace a customer’s fixture or worksurface specification. The supplier CON range 10^3–10^5 crosses the general conductive/dissipative boundary. A grounded assembly and suitable acceptance testing remain necessary. [S2, S3]

Temperature and moisture

HDT is a deflection test under a stated load, not service temperature. [T] The source uses a 5,000/20,000-hour heading: 105/90 preserves its paired values; a single number does not specify duration. [W] ISO 62 air values are at 23 °C/50% RH; soaked values are at 23 °C, with duration unspecified. None of these numbers alone establishes part lifetime.

Mechanical data and approvals

Supplier methods: density ISO 1183; tensile strength and elongation ISO 527 at 10 mm/min; flexural strength ISO 178 at 2 mm/min; HDT ISO 75 at 1.8 MPa. Strength is not allowable working stress. [F] UL 94 is supplier-listed at 3 mm, not independently verified certification. Food, medical, cleanroom, RoHS and REACH claims need separate documents.

Source limitations

The supplier PDF is undated internally and contains translation, unit and incomplete-data problems. This reference preserves useful reported values and flags issues; request a dated revision and verify the supplied grade before customer approval.

Sources and document control

Reference status as of 14 September 2026

S1 NOEGEM Latest physical properties table English

Supplied 12-page English physical-properties PDF, recorded as received 26 June 2026; revision/date not stated inside. Pages 1 ABS, 2 PA, 5 PEEK, 6 PEI, 7 PET, 8 POM, 10 PPS, 11 PTFE, 12 PU.

S2 EOS/ESD Association Fundamentals Part 1

General resistance classifications and charge behaviour.

S3 EOS/ESD Association Fundamentals Part 3

ESD control materials, worksurface grounding and test context.

S4 EOS/ESD Association Fundamentals Part 2

Grounding, bonding and ionization context.

S5 Ensinger TECAPEEK natural

Background on PEEK family behaviour only; no Ensinger numerical specification or approval is transferred to NOEGEM.

S6 Ensinger TECAPEI natural

Background on PEI family and potential applications only.

S7 Ensinger TECAPET white

Background on engineering PET family only.

S8 NOEGEM engineering plastics catalogue

Public category mentions ESD PET, ESD PC and ESD/CON UPE; it does not supply a complete matched specification for these in this review.

S9 ESDin grade register

ESDin product and colour register, reviewed 14 September 2026. Used only for grade naming, not for technical density or current availability.

Supply and enquiries

ESDin independently purchases from NOEGEM / NAGOMER. Grade, supply, processing and lead time are confirmed by quotation. This reference contains no stock commitment or price.

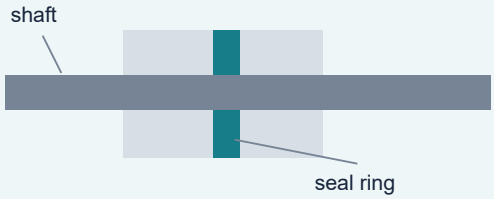
ESDin website

Contact ESDin

PEEK: where it is used

Parts that face heat, chemicals or repeated movement

PEEK often works inside a machine, where a small part must keep doing its job in a demanding environment. The examples below show several different jobs; the required grade depends on that job.



SEE THE PART'S JOB

A seal ring helps close the gap around a shaft so fluid stays in the intended passage.

Schematic • teal highlights the plastic part

SPECIALIST GRADE

Seal ring in a transmission

An automatic transmission directs oil through internal passages. A seal ring helps limit leakage between moving parts. Dedicated PEEK sealing grades are used where hot oil, friction and repeated movement act together. [A2]

SPECIALIST GRADE

Bearing pad in a pump

A rotating pump shaft pushes against its support. A thrust bearing takes this force along the shaft. PEEK bearing pads provide the contact surface in selected pump designs where wear and operating conditions matter. [A22]

SPECIALIST GRADE

Gear in a drive mechanism

A gear passes movement from one rotating shaft to another. Dedicated PEEK gear grades are considered when the design needs a light component that can handle repeated contact, load and elevated temperature. [A1]

GENERAL USE

Insulator in a subsea connector

A connector joins electrical cables. Its plastic body holds the metal contacts apart to prevent an unwanted electrical path. PEEK is used in selected subsea connectors that also face demanding environmental conditions. [A24]

STANDARD OR ESD GRADE

Socket for testing a chip

A socket holds a chip against test contacts. PEEK grades serve mechanical and thermal requirements in this equipment; an ESD version also helps manage static charge. [A4]

ESD USE

Holder in wafer processing

A wafer is a thin disc on which chips are made. Handling parts support or position it during processing. ESD PEEK is used in selected wet-process tools where chemical exposure and static control meet. [A3]

How this relates to the supplied grades

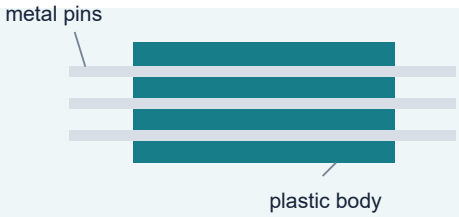
K12, K6 and K2 serve different electrical needs. An insulating connector body and a static-dissipating wafer holder can both use the PEEK family, but need different grades. Glass or carbon reinforcement alone does not establish ESD performance. Supplier data: page 1. [S1]

Examples from other manufacturers' grades. Source scope and links: pages 23–24.

PEI: where it is used

Rigid components for electrical assemblies and warm equipment

PEI is useful to understand as a rigid plastic that can keep components positioned while an assembly becomes warm. Standard grades can provide electrical insulation; modified grades can serve static-control needs.



SEE THE PART'S JOB

The plastic connector body holds metal pins in position and separates them electrically.

Schematic • teal highlights the plastic part

GENERAL USE

Electrical connector body

The body holds metal contacts in position and keeps separate electrical paths apart. Standard PEI is considered when the connector needs stiffness, heat resistance and electrical insulation together. [S6]

GENERAL USE

Housing around electronics

A housing encloses electrical components. PEI is used where the enclosure must stay rigid as equipment warms up. Temperature, dimensions and the assembly's fire specification guide grade selection. [S6]

GENERAL USE

Insulating structural support

A support keeps components aligned inside a machine. Insulating PEI can perform this mechanical job while interrupting an unwanted electrical connection through the structure. Part size and load determine suitability. [S6]

STANDARD OR ESD GRADE

Chip-test socket

A shaped seat positions a chip for contact with the tester. PEI socket grades are selected for dimensions, test temperature and the electrical behaviour required around the device. [A4]

STANDARD OR ESD GRADE

Holder for heated chip testing

Burn-in testing operates devices in heat to reveal early failures. The holder maintains alignment through the cycle. Standard and ESD PEI grades are offered for this equipment. [A4]

SPECIALIST HEALTHCARE GRADE

Medical instrument handle

The handle is the part a clinician grips to control an instrument. Dedicated healthcare PEI formulations are considered for strength and compatibility with specified sterilization processes. This example does not qualify the listed I-series grades for medical use. [A5]

Two different electrical jobs

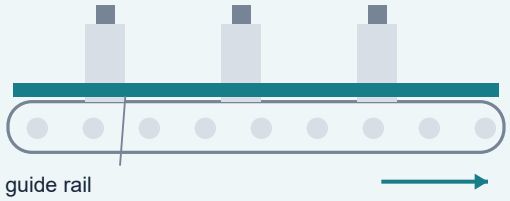
Insulation keeps electrical paths apart; static dissipation allows charge to leave in a controlled way. An ESD grade is therefore not a direct replacement for an insulating connector material. Match I12, I6 or I2 to the intended function. Supplier data: page 2. [S1]

Examples from other manufacturers' grades. Source scope and links: pages 23–24.

PET: where it is used

Accurate guides, sliding parts and handling components

Engineering PET can be supplied as solid stock or made into shaped components. In machinery, its value often comes from helping parts move smoothly while keeping their position and dimensions consistent.



SEE THE PART'S JOB

Side guides keep containers aligned as a conveyor carries them through the machine.

Schematic • teal highlights the plastic part

GENERAL USE

Guide rail on a packing line

A rail keeps moving containers on their path. PET guides provide an accurately shaped sliding surface. Contact with food requires approval for the specific grade and use. [A6]

GENERAL USE

Bushing around a shaft

A bushing is a sleeve between a shaft and its support. It provides the rubbing surface as the shaft moves. PET is used where wear behaviour and consistent fit matter. [A6]

GENERAL USE

Washer between moving parts

A washer is a flat ring that separates parts and receives contact pressure. A PET washer provides a sliding surface, helping control rubbing and spacing within the mechanism. [A6]

GENERAL USE

Roller in a handling machine

A roller turns as a product passes over it. PET provides a firm contact surface where wear resistance and stable dimensions help the machine guide items consistently. [A6]

GENERAL USE

Gripper for product transfer

A gripper holds an item as a machine moves it. Shaped PET gripping components are used where an accurate fit and repeated contact are central to the design. [A6]

ESD USE

Seat in electronic test equipment

The seat locates an electronic device for testing. Specialist ESD PET combines this mechanical holding role with static dissipation. Other manufacturers offer dedicated grades for electronic test equipment. [A4]

Engineering PET and ESD PET

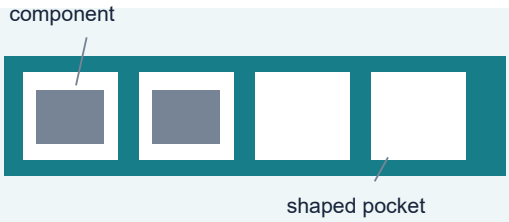
The T12 table describes standard engineering PET. Other manufacturers publish ESD PET grades, but their data cannot fill the missing NOEGEM specification. ESD PET remains an enquiry option pending a matched grade datasheet. Supplier data: page 3; enquiry status: page 10. [S1] [A7]

Examples from other manufacturers' grades. Source scope and links: pages 23–24.

POM: where it is used

Small moving parts and accurate holders for production

POM, also called acetal, appears in machine parts that slide, locate or transfer items. ESD formulations are particularly relevant when these parts touch or carry sensitive electronic components.



SEE THE PART'S JOB

A shaped pocket, often called a nest, holds a component in a repeatable position.

Schematic • teal highlights the plastic part

ESD USE

Assembly nest for electronics

A nest is a shaped pocket that holds a component while someone assembles or checks it. ESD POM fixtures provide this locating function while supporting static control around sensitive devices. [A8]

ESD USE

Hard-drive assembly fixture

A fixture holds hard-drive parts in a repeatable position during manufacture. ESD POM is used where accurate handling and static dissipation are required together. Cleanliness requirements remain specific to the process. [A8]

ESD USE

Tray between workstations

A tray supports several parts while they move between production steps. ESD POM trays combine a rigid carrier with a material selected for static control, rather than relying on the tray's colour to identify performance. [A9]

ESD USE

Sliding guide in automation

A guide keeps a moving component on its intended path. ESD POM is used for sliding rails where repeated contact and static control both matter, such as handling equipment within electronics production. [A9]

ESD USE

Part in an electronic printer

Printer mechanisms repeatedly move and position parts at speed. ESD POM is used for selected mechanical components where wear resistance is useful and static charge must be managed within the equipment. [A8]

GENERAL USE

Gear in packaging equipment

A gear transfers rotation between parts of a machine. Acetal is one of the engineering plastics used for machined packaging components, including gears. This general mechanical use does not itself require an ESD formulation. [A10]

What the ESD version adds

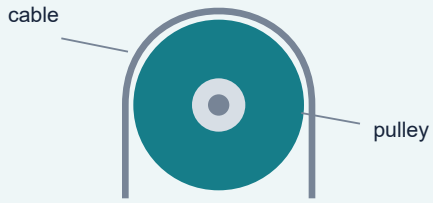
The shape holds or guides the item; the electrical formulation helps manage charge. The finished part still needs the specified resistance and a suitable path to ground. M6 colour variants and the M2 CON grade require separate confirmation. Supplier data: page 4. [S1] [S3]

Examples from other manufacturers' grades. Source scope and links: pages 23–24.

Nylon: where it is used

Tough working parts for movement, guidance and wear

PA means polyamide; nylon is its familiar name. Cast and extruded nylon grades are used in many mechanical parts. Their toughness and wear behaviour are useful, while moisture can change their dimensions.



SEE THE PART'S JOB

A pulley supports and redirects a moving cable; its groove keeps the cable on the wheel.

Schematic • teal highlights the plastic part

GENERAL USE

Pulley for a cable

A pulley is a grooved wheel that redirects a cable or rope. Cast nylon is used for selected pulleys where load, repeated movement and contact wear determine how the wheel is designed. [A11]

GENERAL USE

Gear inside a machine

Gear teeth pass motion from one shaft to another. Nylon gears are used where toughness and wear behaviour suit repeated contact. The tooth shape, speed and force remain part of the material decision. [A11]

GENERAL USE

Roller that supports movement

A roller carries or guides a moving item while turning beneath it. Nylon is used for these working surfaces where repeated mechanical contact is expected. The supported weight and movement speed affect grade selection. [A23]

GENERAL USE

Bushing inside a pivot

A bushing is a sleeve around a shaft or pin. It becomes the contact surface when the joint moves. Nylon bushings are used in mechanical assemblies where sliding wear and fit both matter. [A11]

GENERAL USE

Wear pad on a sliding carriage

A carriage moves along a machine frame. A replaceable nylon pad provides its sliding contact surface, helping guide motion and keeping rubbing concentrated on a serviceable part rather than the main structure. [A23]

GENERAL USE

Cushioning pad at a stop

A moving mechanism comes to rest against a stop. Nylon cushioning parts can moderate contact in selected designs. They are relatively rigid engineering parts; they do not behave like soft foam or rubber. [A11]

When an electrical grade enters the discussion

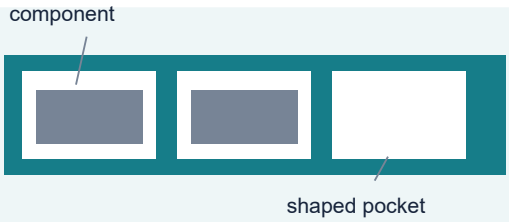
If a nylon handling part works near static-sensitive electronics, its electrical behaviour becomes an additional requirement. A6 or A2 may be candidates after application review; the general nylon examples above are not evidence that either grade has been qualified for that part. Supplier data: page 5. [S1]

Examples from other manufacturers' grades. Source scope and links: pages 23–24.

ABS: where it is used

Housings, covers and carriers that are easy to recognise

ABS is familiar from the rigid outer parts of many everyday products. Industrial versions also form trays and carriers. The examples span moulded housings, formed sheet and machined components; each manufacturing route needs a suitable grade.



SEE THE PART'S JOB

A compartmented tray holds separate components as they move between production stations.

Schematic • teal highlights the plastic part

GENERAL USE

Appliance housing

The rigid outer shell gives an appliance its shape and surrounds its internal mechanism. Moulding grades of ABS are used for housings where appearance, impact behaviour and the ability to form details matter. [A12]

GENERAL USE

Cover around electronics

A cover encloses switches, boards or other electrical components. Standard ABS is used for selected electronic housings because it can form a practical, finished enclosure. Heat and fire requirements determine the appropriate formulation. [A12]

ESD USE

Shaped transport tray

A tray has pockets that separate and locate components during transport. Electrically modified ABS sheet is used for these carriers, combining a formed shape with static-control properties around sensitive products. [A13]

ESD USE

Storage box for components

A box keeps components together between production steps. ESD or conductive ABS grades are used for selected storage boxes where the container itself must take part in the factory's static-control system. [A13]

ESD USE

Returnable production crate

A crate carries parts from one work area to another and can be used repeatedly. Electrically modified ABS is used for such industrial carriers when their handling role also includes a static-control requirement. [A13]

ESD USE

Pocket strip for small parts

A formed strip contains individual pockets that keep small parts arranged for handling. Specialist ABS sheet is used for blister strips and packs where the packaging's shape and electrical behaviour both matter. [A13]

The formulation and supplied form matter

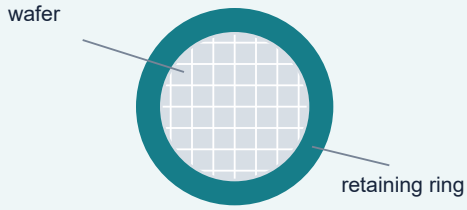
These examples explain the ABS family; they do not establish that B6 stock can be moulded or formed by every process shown. Confirm sheet or rod form, processing suitability and the finished part's electrical behaviour. B6's listed fire rating is HB. Supplier data: page 6. [S1]

Examples from other manufacturers' grades. Source scope and links: pages 23–24.

PPS: where it is used

Precision parts inside hot or chemically demanding equipment

PPS is often selected for functional parts hidden inside process equipment. Its material family is used where heat, chemicals and stable geometry must be considered together.



SEE THE PART'S JOB

A retaining ring surrounds a wafer and keeps it positioned while its surface is polished.

Schematic • teal highlights the plastic part

GENERAL USE

Valve component in a process line

A valve starts, stops or controls the flow of a fluid. PPS is used for selected valve components where the part must retain its shape while exposed to the process temperature and chemical environment. [A25]

GENERAL USE

Pump component

A pump moves liquid through equipment. Some internal parts face both the fluid and mechanical load. PPS is used in selected pump components where chemical resistance and thermal performance influence the design. [A25]

GENERAL USE

Bearing or thrust washer

This contact part supports movement or takes force along a shaft. Suitable PPS grades are used in bearings and thrust washers where repeated rubbing and operating temperature call for a dedicated wear material. [A14]

GENERAL USE

Electrical connector housing

The housing keeps metal contacts aligned and separated. Standard insulating PPS formulations are used in electrical connectors where the assembly needs dimensional stability and resistance to heat. Electrical requirements determine the formulation. [A14]

GENERAL USE

Former for an electrical coil

A coil former is the shaped support around which wire is wound. PPS can provide the rigid structure in selected electrical assemblies, especially where the support must tolerate warmth while preserving its geometry. [A14]

SPECIALIST PROCESS GRADE

Ring for polishing a wafer

In semiconductor polishing, a retaining ring keeps a silicon wafer positioned against the polishing surface. A dedicated PPS grade is used for this wear-sensitive component. This application is not automatically an ESD application. [A15]

Where S6 fits in the conversation

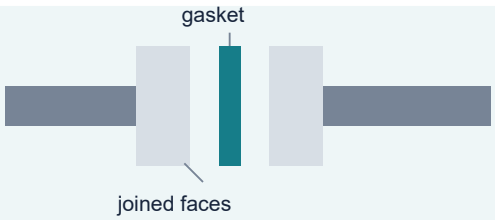
S6 is an electrically modified PPS option. It may be relevant when a process fixture also needs static control, but that is a candidate application requiring review. Standard PPS connector examples do not justify substituting an ESD grade where insulation is required. Supplier data: page 7. [S1]

Examples from other manufacturers' grades. Source scope and links: pages 23–24.

PTFE: where it is used

Sealing surfaces and parts that need low friction

PTFE is useful to picture as a material for a surface that must seal, slide or face chemicals. Its low friction and chemical resistance are valuable; it can also slowly deform under sustained pressure.



SEE THE PART'S JOB

A gasket is squeezed between two joined faces to help stop fluid leaking through the joint.

Schematic • teal highlights the plastic part

GENERAL USE

Seal in fluid equipment

A seal helps close the gap between joined or moving parts so fluid stays inside. PTFE sealing components are used where chemical exposure and sliding behaviour make the contact material especially important. [A26]

GENERAL USE

Seat inside a ball valve

A ball valve turns a drilled ball to open or close a passage. The PTFE seat is the ring against which the ball closes, providing a sealing contact surface around the flow path. [A16]

GENERAL USE

Ring around a moving piston

A piston moves back and forth inside a cylinder. A PTFE-based ring provides contact around the piston in selected designs, helping the mechanism manage friction and sealing as it moves. [A16]

GENERAL USE

Sliding sleeve or bearing

A sleeve provides the rubbing surface between moving parts. PTFE and filled PTFE grades are used in selected bearings and bushes for low friction. Pressure, wear and gradual deformation determine the suitable design. [A26]

GENERAL USE

Insulating sleeve in a connector

A sleeve surrounds a metal conductor and separates it from neighbouring parts. Unfilled insulating PTFE is used for selected electrical sleeves and connector internals. A conductive or ESD formulation serves a different electrical purpose. [A16]

ESD USE

Seal in tablet manufacturing

Powder-processing equipment needs seals and flexible connections between sections. Specialist static-control PTFE is offered for these parts in tablet manufacturing. Product-contact compliance and the equipment's electrical requirements must be specified for the actual grade. [A17]

How this relates to F6

F6 is the supplier's ESD PTFE grade, so the insulating-sleeve example is background on the wider family. Its reported temperature entry does not establish how much pressure a seal or bearing can carry. Supplier data: page 8. [S1]

Examples from other manufacturers' grades. Source scope and links: pages 23–24.

PU: where it is used

Gripping, cushioning and rolling contact

Polyurethane includes many formulations. The examples here concern solid elastomer parts: materials that give under contact and recover. They are useful where a hard plastic or bare metal contact would provide too little grip or cushioning.

SEE THE PART'S JOB

Soft roller surfaces grip a sheet and feed it forward between two rotating rollers.

Schematic • teal highlights the plastic part

GENERAL USE

Feed roller for paper or film

Two rollers grip a sheet and pull it through a machine. Polyurethane provides traction and some give at the contact, helping the rollers move paper, card or film. [A18]

GENERAL USE

Conveyor contact roller

The roller touches a moving product or belt. A polyurethane cover provides grip and some cushioning. Hardness and formulation are matched to the load and the way the roller contacts the item. [A18]

GENERAL USE

Guide or pinch roller

A guide roller keeps a moving strip on track; a pinch roller presses it against another surface. Polyurethane provides controlled contact and traction to help the machine handle material consistently. [A18]

GENERAL USE

Bumper or vibration pad

A bumper receives an impact; a pad can reduce transmitted vibration or cushion a contact point. Polyurethane formulations are used for these jobs because their hardness and recovery can be tuned to the load. [A19]

ESD USE

Roller in electronics handling

The roller moves or supports material near sensitive electronics. An ESD polyurethane formulation combines the contact behaviour of a roller with a specified electrical function. Its mounting and grounding are part of the finished design. [A18] [S4]

ESD USE

Wheel tread on an equipment cart

The tread is the outer layer that rolls on the floor. Conductive polyurethane treads are used on selected industrial wheels. Static control depends on the complete wheel, cart and floor contact path, not the tread alone. [A20] [S4]

A formulation family, not a single recipe

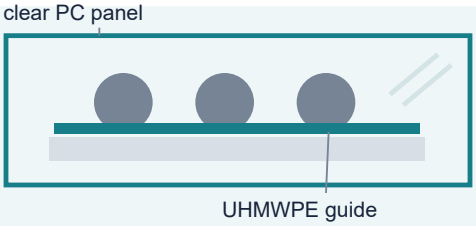
These applications include cast or bonded polyurethane products made by specialist manufacturers. They do not establish that U6 or GU6 can perform the same job. The supplied entries still need identity, hardness, recovery, temperature and electrical confirmation. Supplier data: page 9. [S1]

Examples from other manufacturers' grades. Source scope and links: pages 23–24.

PC and UHMWPE: applications

Clear protective panels and low-friction conveyor parts

Two further families appear in the ESD enquiry range. PC means polycarbonate, often used when visibility matters. UHMWPE, also called UPE or PE-1000, is a very high molecular weight polyethylene used for sliding and wear surfaces.



SEE THE PART'S JOB

A clear PC panel allows viewing of a machine; UHMWPE guides support sliding conveyor contact.

Schematic • teal highlights the plastic part

PC • SPECIALIST ESD SHEET

Window in a machine cover

A clear panel lets an operator see the process while the equipment stays enclosed. Static-dissipative coated polycarbonate is used for machine windows and covers near sensitive operations. Guarding strength remains a separate design requirement. [A21]

PC • SPECIALIST ESD SHEET

Transparent access panel

An access panel opens for maintenance and closes during operation. A specialist coated PC sheet can combine visibility with a dissipative surface in electronics equipment. The coating's handling and fabrication instructions matter. [A21]

PC • SPECIALIST ESD SHEET

Partition around a work area

A transparent partition separates a sensitive work area while allowing people to see through it. Static-control PC glazing is used for selected enclosures and partitions. This is a coated-sheet example, not proof of a bulk ESD grade. [A21]

UHMWPE • GENERAL / ESD

Guide beneath a conveyor chain

A shaped rail supports a chain as it slides through a conveyor. UHMWPE is used for the low-friction wear surface; antistatic versions are also offered where the process has an electrical-control requirement. [A10]

UHMWPE • GENERAL USE

Wear strip beside moving products

A replaceable strip provides the surface that products rub against. UHMWPE wear strips are used in material handling to guide motion and receive repeated sliding contact while protecting more expensive machine structures. [A10]

UHMWPE • GENERAL USE

Liner in a material-handling path

A liner covers a surface over which items slide. UHMWPE sliding sheets are used where low friction and wear resistance help material pass along the equipment. An ESD version is a separate formulation choice. [A10]

Enquiry status

NOEGEM's catalogue mentions ESD PC and ESD / CON UPE, but matching numerical datasheets were not provided. The PC examples above use another manufacturer's surface coating. Confirm construction, electrical test results and grade identity before quoting performance. See page 10; ESD PET applications are on page 15. [S8] [A21]

Examples from other manufacturers' grades. Source scope and links: pages 23–24.

Application sources

Independent manufacturer references • reviewed 14 September 2026

These examples explain applications of the material families and specialist grades described by other manufacturers. They include machined, moulded, cast and coated products; they are not a list of finished parts supplied by ESDin. A published application for another brand does not establish approval or equivalent performance for a NOEGEM / NAGOMER grade.

A1 Victrex — PEEK polymer portfolio

Dedicated gear and wear formulations; family context rather than NOEGEM performance data.

A2 Victrex — PEEK seal-ring solutions

Sealing rings for automatic transmissions and associated operating demands.

A3 Mitsubishi Chemical Advanced Materials — Semitron ESd 480 PEEK

ESD test fixtures and wafer handling in wet-process equipment.

A4 Mitsubishi Chemical Advanced Materials — Back-end test and electronic fixturing

Standard and electrically modified PEEK, PEI and PET for chip-test equipment.

A5 SABIC — Healthcare materials brochure

Healthcare PEI formulations and instrument applications; dedicated grade approvals apply.

A6 Ensinger — PET injection moulding applications

Guides, bushes, washers, rollers and grippers. Includes moulded products.

A7 Mitsubishi Chemical Advanced Materials — Semitron ESd 300 PET-P

Evidence of a separate commercial ESD PET grade; no numerical values transferred.

A8 Mitsubishi Chemical Advanced Materials — Semitron ESd 225 POM

ESD fixtures, hard-drive manufacturing and electronic printing components.

A9 Röchling Industrial — Sustarin C ESD 60 PLUS

ESD acetal sliding rails, transport trays and housings.

A10 Röchling Industrial — Conveyor and material handling brochure

Machined acetal parts and UHMWPE wear surfaces, including an antistatic chain guide.

A11 Ensinger — Cast nylon

Pulleys, gears, bushes and cushioning parts in the wider nylon family.

A12 INEOS Styrolution — Terluran GP-22 ABS

Moulding-grade ABS applications including appliance and electronics housings.

A13 Röchling Industrial — Maywotron ABS P

Electrically modified ABS sheet for trays, crates, boxes and blister packaging.

Application sources continued

Independent manufacturer references • reviewed 14 September 2026

Descriptions of what each part does are written in plain English. General examples explain a material family; ESD and specialist examples identify additional formulation needs. Schematics are original illustrations, not dimensioned product drawings.

A14 Mitsubishi Chemical Advanced Materials — PPS material applications

Process, wear and electrical parts. Standard, reinforced and wear grades differ.

A15 Ensinger — CMP retaining-ring case study

A dedicated PPS ring used in chemical-mechanical polishing of silicon wafers.

A16 Röchling Industrial — PTFE components and applications

Seals, valve seats, piston rings, bearings and electrical insulating parts.

A17 Röchling Industrial — Plastics for pharmaceutical production

Static-control PTFE seals and flexible connections in tablet-manufacturing equipment.

A18 Mearthane Products Corporation — Polyurethane rollers

Feed, conveyor, guide and pinch rollers, including ESD electronics applications.

A19 Mearthane Products Corporation — Polyurethane pads and bumpers

Impact cushioning, vibration control and contact pads.

A20 Blickle — Conductive polyurethane wheels

Specialist electrically conductive polyurethane treads on industrial wheels.

A21 SciCron Technologies — PC-300 static-dissipative polycarbonate

Surface-coated PC for windows, covers, access panels and partitions.

A22 Victrex — PEEK bearing pads in pumps

Published pump application using PEEK in thrust-bearing pads.

A23 Ensinger — Extruded nylon

Nylon roller wheels and sliding parts; separate from cast-nylon grade data.

A24 Ensinger — Oil and gas stock-shape applications

PEEK subsea connectors and the wider role of plastics in process equipment.

A25 Ensinger — PPS plastic applications

PPS valves, pump components and other demanding mechanical applications.

A26 Ensinger — PTFE material applications

PTFE sealing and sliding components; low friction and deformation under load.