



Request for Quotation (RFQ) for the supply of FILM BLOWING GRADE BIOPOLYMERS namely polylactic acid (PLA), polybutyle adipate terephthalate (PBAT) and polybutylene succinate (PBS) to the CSIR

RFQ No. 5571/22/01/2020

Date of issue	Wednesday, 08 January 2020
Closing Date and Time	Wednesday, 22 January 2020 at 16H30 (Late submissions will not be considered)
Contact details	For submission of quotations or any other enquiries: tender@csir.co.za (Please use RFQ Number at subject reference)

1 INVITATION FOR QUOTATION

Quotations are hereby invited for the supply of FILM BLOWING GRADE BIOPOLYMERS namely polylactic acid (PLA), polybutyle adipate terephthalate (PBAT) and polybutylene succinate (PBS) to the CSIR.

2 QUOTATION REQUIREMENTS

- Specified polymers (PLA, PBAT and PBS) must be of FILM BLOWING GRADE (Refer to the specification on each polymer below and any deviation from these values are not acceptable strictly)
- Include TDS (Technical Data-sheet) of material with the RFQ documentation.
- All the materials must be delivered at CSIR approximately within 10 days after placing the order.
- Reliability and consistency of the supplied material, i.e. supply polymers as quoted/ordered. Failing on delivery to satisfaction requires refunding of payment.
- Materials should be process able using general purpose screw with L/D ratio between 24 and 32.
- All the polymers should comply with the food contact grade.
- Price must include all the transportation costs and no hidden cost is acceptable.
- Required amount of PLA, PBS and PBAT are 500 kg, 250 kg and 500 kg, respectively.

1. Specification of PLA:

- PLA must have a high viscosity, low flow and suitable for extrusion, film blowing, thermoforming and fibre spinning.
- Density: 1.24 g.cm³
- Melt flow index: 3 g/10 min (measured at 190 °C, 2.16 kg, test method: ISO 1133A)
- Stereochemical purity: 96% (L-isomer)
- Residual monomer: < 0.3%
- Glass transition temperature: 55-60 °C
- Melting temperature: 155 °C
- Moisture content: <400 ppm (determined by Coulometric Carl-Fischer method)
- Appearance: crystalline white pellets
- Tensile modulus: 3500 MPa (test method: ISO 527-1)
- Tensile strength: 45 MPa (test method: ISO 527-1)
- Elongation at break: approximately 5% (test method: ISO 527-1)

2. Specification of PBS:

- PBS must have a high viscosity, low flow and suitable for Blown film extrusion.
- Density: 1.25 g.cm³
- Melt flow index: 2 g/10 min (measured at 190 °C, 2.16 kg, test method: ISO 1133A)
- Glass transition temperature: -32 °C
- Melting temperature: 115 °C
- Crystallization temperature: 75 °C
- Moisture content: <400 ppm (determined by Coulometric Carl-Fischer method)
- Tensile strength: Min 450 kg/cm² (test method: ASTM D1238)
- Elongation at break: Min 500%
- HDT: 97 °C (at 0.45 MPa)

3. Specification of PBAT:

- PBAT grade must have high molecular weight, long branched molecular structure, high ultimate elongation at break, high failure energy (dart drop), resistance to water- and tear and weldable.
- Density: 1.25-1.27 g.cm³
- Melt flow index: 2.7-4.9 g/10 min (measured at 190 °C, 2.16 kg, test method: ISO 1133A)
- Transparency: 82% (test method: ASTM D1003)
- Melting temperature: 110-120 °C
- Vicat softening temperature: 91°C

- Tensile strength: 35-44 N/mm² (test method: ISO 527)
- Elongation at break: Min 560-710% (test method: ISO 527)
- Hardness, Shore D: 32 (test method: ISO 686)

3 Additional requirements

- Warranties and guarantees
- Aftersales support
- Clearly indicate VAT charged where applicable (if not VAT registered please state so clearly)
- Provide valid original or certified B-BBEE certificate issued by SANAS accredited provider or CIPC, or valid sworn affidavit in DTI template. (Not applicable to non-South African service providers).

4 Elimination criteria

- 4.1 Late submission of quotes
- 4.2 Failure to adhere to quotation specifications
- 4.3 Submission at the wrong location or incorrect email address (Please submit electronically to tender@csir.co.za)

5 EVALUATION CRITERIA

- 5.1 Selection of suppliers will be based on the 80/20 preference point system.
- 5.2 Include a valid B-BBEE certificate with your quotation. No B-BBEE status will equal zero points.
- 5.3 Indicate CSD number (National Treasury Central Supplier Database) on quotation. If not registered yet on CSD, use www.csd.gov.za to register.
- 5.4 No order will be issued or no contract will be signed without a valid CSD number.

6 PRICING QUOTATION

- 6.1 Price needs to be provided in **South African Rand (excl. VAT)**, with details on price elements that are subject to escalation and exchange rate fluctuations clearly indicated.
- 6.2 Price should include additional cost elements such as freight, insurance until acceptance, duty where applicable, etc.
- 6.3 Payment will be according to the CSIR Payment Terms and Conditions.

7 OTHER TERMS AND CONDITIONS

- 7.1 The supplier shall under no circumstances offer, promise or make any gift, payment, loan, reward, inducement, benefit or other advantage, which may be construed as being made to solicit any favour, to any CSIR employee or its representatives. Such an act shall constitute a material breach of the Agreement and the CSIR shall be entitled to terminate the Agreement forthwith, without prejudice to any of its rights.
- 7.2 A validity period of 90 days will apply to all quotations except where indicated differently on the quote.

8 No goods and/or services should be delivered to the CSIR without an official CSIR Purchase order. CSIR purchase order number must be quoted on the invoice. Invoices without CSIR purchase order numbers will be returned to supplier.

9 Note: This is not a Purchase Order.