

Recycled Polypropylene (PP) Testing

What Is Recycled Polypropylene (PP) Testing?

Recycled Polypropylene (PP) Testing encompasses a range of analytical procedures designed to meticulously evaluate the **quality, characteristics, and conformity** of PP materials recovered from post-consumer or post-industrial waste streams.

Why Is Recycled Polypropylene (PP) Testing Important?

This vital testing ensures that the **recycled PP** meets specific industry benchmarks, such as those outlined in **UNE-EN 15345**, and is suitable for its intended secondary applications, which can include packaging, automotive parts, fibres, and containers.

Applus+ Laboratories holds ENAC accreditation (LE 1680) for polymer testing, underscoring our dedication to **quality** and precision in materials characterisation. We also hold COFRAC and NDACAP for impact resistance, and density and COFRAC for flexural test and tensile tests.

What Compulsory Recycled Polypropylene (PP) Testing Do We Perform?

Applus+ Laboratories delivers a comprehensive suite of **testing services for Recycled Polypropylene (PP)**, meticulously designed to ensure your materials satisfy stringent **quality, performance, and regulatory demands**.

Our expert services assess the critical **physical, mechanical, and rheological properties** that determine the successful application and processing of **recycled PP**. We also provide expert **sample preparation** from pellets or flakes, including **extrusion and injection moulding** of test specimens, to guarantee accurate and representative test results for your PP recyclates.

Core Recycled PP Characterisation (Aligned with UNE-EN 15345)

These tests focus on the fundamental appearance, composition, and basic physical and mechanical attributes of the **recycled Polypropylene** material, often considered mandatory for baseline quality assessment.

Visual and Physical Characteristics:

- **Colour Assessment:** Performed via visual inspection to ensure **colour consistency** and meet specific aesthetic or functional requirements for **recycled PP** products.
- **Shape and Surface Quality Evaluation:** Visual inspection to characterise granule or flake form and assess surface integrity, which impacts handling and processing.
- **Contamination Screening:** Assessed visually to determine the presence of foreign particles or non-PP materials, critical for **quality control**.
- **Density Measurement:** Determined according to **EN ISO 1183-1 (Method A)** using the immersion method (COFRAC accredited). This is a key identifier for PP consistency and helps differentiate it from other polymers.

Mechanical Performance:

- **Impact Resistance Testing:** Assessed using methods like **ISO 179-1 (Charpy)** (COFRAC/NADCAP accredited) and **ISO 180 (Izod)**. These tests evaluate the **recycled PP's** toughness and its ability to withstand sudden impacts, crucial for durable applications. Testing is performed in a temperature-controlled environment for comprehensive impact behaviour analysis.

Processability Indicators:

- **Melt Flow Index (MFI) Analysis:** Performed according to **EN ISO 1133 (Condition M)**. This measures the flow characteristics of molten PP, a key indicator of its **processability** in extrusion or injection moulding and for **quality control** verification. Multiple measurement points are taken in a temperature-controlled setting.

Further Recommended Testing for Comprehensive PP Evaluation

This suite of tests provides a deeper understanding of the **recycled PP's** properties, often recommended for specific applications or more stringent quality requirements.

Advanced Physical Properties:

- **Apparent Density:** Determined as per **UNE EN 15344 (Annex B)**, providing information on the bulk density of the granular or flake material.
- **Ash Content:** Measured according to **EN ISO 3451-1** to determine the amount of inorganic residue after combustion, indicating the level of inorganic fillers or contaminants.
- **Filtration Level Assessment:** Characterisation of the material's behaviour during melt filtration (e.g., by mesh size), indicating the presence of oversized or unmelted particles.

Composition and Purity:

- **Polymer Presence Verification:** Utilising techniques such as Infrared Spectroscopy (IR) or Differential Scanning Calorimetry (DSC) to confirm the identity and purity of the Polypropylene.

- **Residual Humidity:** Measured according to **EN 12099** (e.g., Karl Fisher method) to determine moisture content, which can affect processing and final product quality.
- **Recycled Content Verification:** Assessed following guidelines such as **EN 15343** to substantiate claims regarding the proportion of recycled material.

Enhanced Mechanical Properties:

- **Flexural Resistance (Flexural Modulus and Strength):** Measured according to **ISO 178** (COFRAC accredited) to determine the material's stiffness and behaviour under bending loads.
- **Tensile Properties (Strength and Elongation):** Determined as per **EN ISO 527-1** and **EN ISO 527-2** (COFRAC accredited). These tests measure the material's resistance to pulling forces and its ability to stretch before breaking – vital for a wide range of PP applications.

What Are the Benefits of Recycled Polypropylene (PP) Testing?

Engaging in **Recycled Polypropylene (PP) Testing** with Applus+ Laboratories delivers substantial and wide-ranging benefits for your organisation and products:

- **Uphold Product Quality and Regulatory Adherence:** Verifying **recycled PP** properties maintains high material and product standards for enhanced reliability and customer satisfaction.
- **Boost Market Acceptance and Credibility:** Providing certified test reports for your **recycled PP** significantly enhances its **credibility**, making it a more attractive and trustworthy option for buyers and specifiers, leading to increased consumer and supplier confidence.
- **Champion [Sustainability](#) and Circular Economy Goals:** By ensuring the **quality** and viability of **recycled Polypropylene**, your organisation actively contributes to the **circular economy**, reduces plastic waste, conserves resources, and promotes the use of [sustainable materials](#).
- **Access a Streamlined Certification Pathway:** A significant advantage is the ability to have both **recycled PP testing** and product **certification services** expertly managed by the same Applus+ Laboratories team, simplifying processes and accelerating your time-to-market.

Why Choose Applus+ Laboratories for Recycled Polypropylene (PP) Testing?

Selecting [Applus+ Laboratories](#) for your **Recycled Polypropylene (PP) testing** requirements means partnering with an internationally recognised leader in [materials testing](#), inspection, and certification. We offer distinct advantages:

- **Recognised Expertise in Polymers:** Our specialised knowledge in polymer science and recycled materials allows us to expertly navigate the complexities of their behaviour, ensuring we can address any property or performance challenges.
- **Integrated Testing and Certification Solutions:** We provide a seamless, efficient experience by offering both comprehensive **recycled PP testing services** and product **certification** from a single, expert, and coordinated team. This is a key benefit, streamlining your path to market.
- **Commitment to Reliable and Precise Results:** Our meticulous approach to **PP testing**, stringent **quality control** protocols guarantee accurate, dependable, and actionable data, empowering you to make confident decisions about your materials and products.
- **Client-Focused Approach:** We work in close partnership with our clients, offering tailored testing plans to meet unique requirements and address specific challenges related to your **recycled Polypropylene** materials and their intended applications.
- **Global Recognition and [Market Access](#):** Applus+ Laboratories is an internationally respected entity. Our test reports and certifications carry significant weight in global markets, helping you to differentiate your **recycled PP** products and enhance their market standing.

By partnering with Applus+ Laboratories, you gain access to world-class testing facilities, unparalleled expert insights, and a steadfast commitment to helping you achieve your **quality**, compliance, and **sustainability** objectives for **recycled Polypropylene**.