# High-Performance Plastics Manufacturing Facility Capability & Certification Handbook

**Production Capacities and Quality Certifications for PTFE, PFA, PEEK, PPS, PVDF, and PI**

## Executive Summary

This handbook provides comprehensive information about our high-performance plastics manufacturing facility, including production capacities for PTFE, PFA, PEEK, PPS, PVDF, and PI materials, quality management certifications, testing capabilities, and compliance with international standards.

## 1. Facility Overview

### Basic Information

**Established:** [Year]
**Location:** [City, Country]
**Total Area:** [Area] square meters
**Employees:** [Number] direct manufacturing personnel
**Production Lines:** [Number] dedicated high-performance plastic lines

## 2. Production Capabilities by Material

### PTFE (Polytetrafluoroethylene) Production

**Annual Capacity:** [Amount] metric tons
**Processing Methods:** Compression molding, paste extrusion, skiving, CNC machining
**Product Forms:** Rods, tubes, sheets, films, custom machined parts
**Size Range:** Rods up to Ø[Size]mm, sheets up to [Size]mm×[Size]mm

### PFA (Perfluoroalkoxy) Production

**Annual Capacity:** [Amount] metric tons
**Processing Methods:** Injection molding, extrusion, melt processing
**Product Forms:** Tubes, pipes, films, molded components
**Size Range:** Tubes from OD [Size]mm to OD [Size]mm

### PEEK (Polyether Ether Ketone) Production

**Annual Capacity:** [Amount] metric tons
**Processing Methods:** Injection molding, extrusion, compression molding
**Product Forms:** Rods, plates, custom machined components
**Size Range:** Rods up to Ø[Size]mm, plates up to [Size]mm×[Size]mm

### PPS (Polyphenylene Sulfide) Production

**Annual Capacity:** [Amount] metric tons
**Processing Methods:** Injection molding, extrusion, compression molding

**Product Forms:** Sheets, rods, custom molded parts
**Size Range:** Sheets up to [Size]mm×[Size]mm, rods up to Ø[Size]mm

### PVDF (Polyvinylidene Fluoride) Production

**Annual Capacity:** [Amount] metric tons
**Processing Methods:** Extrusion, injection molding, thermoforming
**Product Forms:** Sheets, pipes, fittings, molded parts
**Size Range:** Sheets up to [Size]mm×[Size]mm, pipes up to DN[Size]

### PI (Polyimide) Production

**Annual Capacity:** [Amount] metric tons
**Processing Methods:** Casting, compression molding, machining
**Product Forms:** Films, laminates, custom machined parts
**Size Range:** Films down to [Thickness]μm, sheets up to [Size]mm×[Size]mm

### Total Annual Production Capacity

| Material Type | Annual Capacity (MT) | Utilization Rate |
|---|---|---|
| PTFE | [Amount] | [Percentage]% |
| PFA | [Amount] | [Percentage]% |
| PEEK | [Amount] | [Percentage]% |
| PPS | [Amount] | [Percentage]% |
| PVDF | [Amount] | [Percentage]% |
| PI | [Amount] | [Percentage]% |
| TOTAL | [Amount] | [Percentage]% |

## 3. Quality Management Systems

### Certifications Held

**Our facility maintains the following internationally recognized quality and environmental management certifications:**

- ISO 9001:2015 Quality Management System
- ISO 14001:2015 Environmental Management System
- ISO 45001:2018 Occupational Health and Safety Management
- IATF 16949:2016 Automotive Quality Management
- AS9100D Aerospace Quality Management
- ISO 13485:2016 Medical Device Quality Management

### Testing & Inspection Capabilities

**Our on-site laboratory is equipped with advanced analytical instruments to ensure consistent product quality and compliance with customer specifications:**

- Differential Scanning Calorimeter (DSC) for thermal analysis
- Fourier Transform Infrared Spectroscopy (FTIR) for chemical composition
- Gel Permeation Chromatography (GPC) for molecular weight determination
- Universal Testing Machine for mechanical property evaluation

- Dielectric Test Equipment for electrical property measurement
- SEM for microscopic structure analysis
- ICP-MS for trace element analysis
- Particle Counter for cleanliness verification

### Routine Material Testing Parameters

| Test Parameter | Test Method | Frequency | Acceptance Criteria |
|---|---|---|---|
| Density | ASTM D792 | Per batch | ±0.02 g/cm$^3$ |
| Tensile Strength | ASTM D638 | Per batch | Customer specification |
| Melt Flow Index | ASTM D1238 | Daily | ±10% of target |
| Dielectric Strength | ASTM D149 | Per batch | >20 kV/mm |
| Extractables | proprietary method | Monthly | <1 ppm total |
| Particle Count | proprietary method | Per batch | <10 pcs/mL (0.2μm+) |
| Thermal Stability | TGA Analysis | Quarterly | Decomposition >500°C |

## 4. Regulatory Compliance & Standards

### International Standards Compliance

**Our products and manufacturing processes comply with the following international standards and regulations:**

- ASTM D4894 - Standard Specification for PTFE Extruded Shapes
- ASTM D3611 - Standard Specification for PTFE Molded and Skived Shapes
- UL 746C - Polymeric Materials - Use in Electrical Equipment Evaluation
- FDA 21 CFR 177.1550 - Fluorocarbon Resins (Food Contact Use)
- USP Class VI - Biological Evaluation of Plastics
- RoHS Directive 2011/65/EU - Restriction of Hazardous Substances
- REACH Regulation (EC) No 1907/2006 - Registration, Evaluation, Authorization
- Conflict Minerals Policy - Dodd-Frank Act Section 1502 Compliance

### Specialized Industry Approvals

**We have obtained specific approvals for use in sensitive applications:**

- Semiconductor Equipment Materials Approval (SEMI Standards)
- Biocompatibility Certificate for Medical Applications (ISO 10993)
- Nuclear Grade Material Qualification
- Aerospace Material Specifications (AMS) Compliance
- Automotive Industry Action Group (AIAG) Recognition

## 5. Environmental Responsibility

**Our manufacturing operations are conducted with full commitment to environmental protection and sustainability:**

- Zero discharge wastewater treatment system
- Closed-loop solvent recovery in processing operations
- Energy-efficient heating systems for processing ovens
- Recycling programs for scrap materials and packaging
- Carbon footprint monitoring and reduction initiatives
- Life cycle assessment for new product development

## Conclusion

*This capability and certification handbook demonstrates our commitment to quality, compliance, and continuous improvement in high-performance plastics manufacturing. With state-of-the-art facilities, robust quality systems, and experienced technical teams, we are positioned to support your most demanding applications.*