

# Advanced Manufacturing & Fabrication - Plastics

Apply safety principles, practices, philosophy, and guidelines to the work environment. [STS.HS.3.1](#)

- a** Complete applicable safety assessment with 100% accuracy. [STS.HS.3.1.A](#)
- b** Employ appropriate Personal Protective Equipment (PPE) while in the lab setting. [STS.HS.3.1.B](#)
- c** Employ eye protection in compliance with Neb. Rev. Statute 79–715. [STS.HS.3.1.C](#)
- d** Employ the safe application of tools and machines. [STS.HS.3.1.D](#)
- e** Explain the main hazards that are possible in the lab setting. [STS.HS.3.1.E](#)
- f** Demonstrate proper handling and storing of materials and chemicals. [STS.HS.3.1.F](#)

Execute accurate measurements using precision plastic measurement tools. [STS.HS.3.2](#)

- a** Identify types of precision measurement tools. [STS.HS.3.2.A](#)
- b** Categorize precision measurement tools by use. [STS.HS.3.2.B](#)
- c** Differentiate between measurement tools and layout tools. [STS.HS.3.2.C](#)
- d** Demonstrate the accurate use of measurement and layout tools to 1/64" precision or 0.5mm precision. [STS.HS.3.2.D](#)

Solve math functions and formulas to complete plastics job or workplace tasks. [STS.HS.3.3](#)

- a** Identify whole numbers, decimals, fractions, and complex numbers. [STS.HS.3.3.A](#)
- b** Apply intermediate arithmetic operations. [STS.HS.3.3.B](#)
- c** Apply basic geometric operations. [STS.HS.3.3.C](#)
- d** Solve decimal or fraction conversions. [STS.HS.3.3.D](#)
- e** Solve metric or United States Customary System (USCS) conversions. [STS.HS.3.3.E](#)

Identify career opportunities in the plastics manufacturing industry. [STS.HS.3.4](#)

- a** Describe work behaviors needed to be employable. [STS.HS.3.4.A](#)
- b** Employ appropriate work behavior that meets or exceeds plastics industry standards. [STS.HS.3.4.B](#)

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- c** Explain the required education, certification, or licensure needed for a plastics manufacturing career. STS.HS.3.4.C
  - d** Analyze the value that may be added to the community by manufacturing professionals. STS.HS.3.4.D
  - e** Explain the industry standard compensation for a plastics manufacturing professional. STS.HS.3.4.E
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**Apply manufacturing communications.** STS.HS.3.5

- a** Define plastic manufacturing terminology. STS.HS.3.5.A
  - b** Generate a plastic project proposal. STS.HS.3.5.B
  - c** Estimate manufacturing timelines based on criteria. STS.HS.3.5.C
  - d** Utilize business and interpersonal communication appropriate to the work environment. STS.HS.3.5.D
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**Describe the materials, tools, machines, and processes required to manufacture a plastic product.** STS.HS.3.6

- a** Identify the various types of plastics and their characteristics. STS.HS.3.6.A
  - b** Differentiate additive and subtractive manufacturing. STS.HS.3.6.B
  - c** Identify fasteners by their industry standard applications. STS.HS.3.6.C
  - d** Differentiate between various types of mechanical and chemical fasteners. STS.HS.3.6.D
  - e** Estimate amount of materials and supplies needed for a product. STS.HS.3.6.E
  - f** Determine feed rate and speed settings for a material and process. STS.HS.3.6.F
  - g** Explain the operation and application of common plastic industry finishes. STS.HS.3.6.G
  - h** Assess potential environmental and health impacts of using specific materials or processes. STS.HS.3.6.H
  - i** Determine the correct tools, machines, and processes needed to produce a specific plastic product. STS.HS.3.6.I
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**Manufacture a custom-level product that uses plastic as its primary material.** STS.HS.3.7

- a** Interpret plans, drawings, and specifications to process materials. STS.HS.3.7.A
- b** Coordinate the standard operation and application of tools and machines along the manufacturing process. STS.HS.3.7.B
- c** Plan and apply the type of materials, processes, and finishes required to manufacture a specific product. STS.HS.3.7.C
- d** Critique a finished product. STS.HS.3.7.D

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**e Appraise the manufacturing process for streamlining opportunities.** STS.HS.3.7.E