



Mass Documentation of Plastic Parts

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This standard provides a guideline for regularly recording the mass of a part with the established dimensional correctness. A recommended recording protocol of mass of the part can be utilized at the press to provide a high level of confidence that the part will meet part dimensional requirements. For foamed plastic parts, whether via Mucell or Chemical Foaming Agents (CFA), foam consistency can be partially verified using the mass check. Incorporating standard Statistical Process Control protocol easily enables recording part mass without any additional costs.

1.2 Applicability. This specification applies to establishing a recordable, consistent part mass that should be used as a quick reference (dimensional versus mass) for part acceptance during molding of plastic parts at initial tryout and in regular production.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW3059

2.3 Additional References.

- www.mucell.com

3 Requirements

3.1 During the initial phases of tool tryouts (trial 1 or trial 2), record part mass to correlate dimensional correctness, by fitting the part on the gage and checking the tolerance requirements indicated in part drawing requirements. A mass/tolerance correctness will be established as the tool is tuned and the process finalized. Process conditions and variable charts should be combined and kept for future reference for each evaluation (short run). During the short runs, construct X-bar R charts using mass of part and plot accordingly.

3.2 Once dimensional correctness is established and signed off along with demonstration of related mass of part showing correlation between mass and a dimensionally correct part, production parts need to have mass recorded on an established frequency, so they ensure process/dimensional correctness is maintained while minimizing the number of mass measurements, per shift. The molding operations manager needs to establish this protocol, but no less than one (1) part per shift needs to be measured. For foamed parts, at least one (1) part per hour should be measured.

3.3 Record the mass of the molded part.

3.4 Plot the mass of the molded part versus time increment and track.

4 Validation

4.1 General. During the first shot tool trial and subsequent tool, part development, and full production parts, the mass of part will be recorded via a standard Statistical Process Control (SPC) charting protocol and plotted on a Control Chart; Short Runs for development phase and Long Runs for full production after Production Part Approval Process (PPAP). Charts are to be kept near press and in active part production files for reference and upon request.

5 Provisions for Shipping

Not applicable.

6 Notes

6.1 Glossary.

MuCell: Microcellular Foaming Technology for Plastics Processing Industry.

6.2 Acronyms, Abbreviations, and Symbols.

CFA	Chemical Foaming Agents
PPAP	Production Part Approval Process
SPC	Statistical Process Control

7 Additional Paragraphs

7.1 All parts or systems supplied to this standard must comply with the requirements of GMW3059, **Restricted and Reportable Substances**.

8 Coding System

This standard shall be referenced in other documents, drawings, etc., as follows:

GMW17642

9 Release and Revisions

This standard was originated in June 2016. It was first approved by the Materials – Plastics Global Subsystem Leadership Team in August 2016. It was first published in August 2016.

Issue	Publication Date	Description (Organization)
1	AUG 2016	Initial publication.