



*Title: Mold Sampling Level Instructions*

**1. PURPOSE**

To list and define requirements for the level of sampling to be performed for new, existing and transfer molds.

Mold sampling Level to be determined by Program Manager based on customer needs, the sampling levels is as follows.

- 1. Tooling Verification.
- 2. Level 1 sampling
- 3. Level 2 sampling
- 4. Level 3 sampling

**2. SCOPE**

To detail the necessary steps to fulfill the customer requirements pertaining to the sampling of new and transfer tools by the process engineering department or contract mold makers.

**3. PREREQUISITES**

Outline information required before proceeding with the listed procedure; for example, worksheets, documents, IFAS reports, etc.

**Mold Sampling Worksheet.**

**Mold Sample Feedback Report.**

**Mold Sample Work Order**, to include sample category and special instructions if any.

**4. RESPONSIBILITIES**

Identify the personnel that have a primary role in the SOP and describe how their responsibilities relate to this SOP. If necessary, include contact information.

**Contract Mold Builders** – To perform the tooling verification category.

**Process Engineering Department** - to test mold functionality and develop a process for new, existing and transfer molds utilizing **Standard Molding Practices** as defined in definitions section of this SOP, and provide sample parts and documentation as describe in the procedure section of this SOP pertaining to the level sampling assigned to the job.

**5. INSTRUCTIONS**

**5.1 Tooling Verification**

- 1. Produce parts that meet customer’s visual and dimensional specifications.
- 2. Submit 1 complete shot along with visual and dimensional report to project manager.

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3. Processor to discuss any concerns regarding quality and or tool functionality with project manager to determine if repairs or alterations are required prior to sampling under the jobs category level.  
If mold is unable to produce an acceptable part, a detailed report with issues that prevented the sampling must be submitted.

**5.2 Level 1 Sampling**

1. Develop process utilizing **Standard Molding Practices** to produce a visually acceptable part that meet customer specifications.
2. Run mold for a minimum of one ½ hour with specified resin to allow process to stabilize prior to collecting sample parts.
3. Collect and deliver 2 sample shots to QA for visual inspection to ensure that parts meet visual quality criteria prior to continuing sample. Parts and reports to be retained by Quality Department.
4. Perform ½ hour dry cycle, to test mold functionality. This may be performed while waiting for QA approval of submitted parts. See definitions.
5. After QA approval, restart machine and let stabilize a minimum ½ hour, then collect 2 short shots @ 90% fill and 18 sample shots, bagged individually, and identified with mold #, date and sample level to be distributed as listed below.
  - a. 1 Short shot and 12 sample shots to be delivered to program manager.
  - b. 1 short shot and 3 shots to be retained by process engineering for a minimum of 60 days from date of sample.
  - c. 3 sample shots to be submitted to QA for visual and dimensional inspection of critical dimensions as per product drawing.
  - d. The required quantities may differ if specified on **Mold Sample Work Order**.
6. Process engineer to complete the “General Information” and “Process Parameters” tab on the **Mold Sampling Worksheet**.
7. Save the “**Mold Sampling Worksheet**” in the following filename format: “SAMPLE\_MOLD#\_MMDDYY.xls” e.g:”SAMPLE\_FB-001-01\_010117” to the corresponding customer product folder.
8. Complete **Mold Sample Feedback Report** and save file to the corresponding customer product folder in the following file format “MSFR\_MOLD#\_MMDDYY” e.g. “MSFR\_FB-001\_010117”

**5.3 Level 2 Sampling**

1. Develop process utilizing **Standard Molding Practices** to produce a visually acceptable part that meet customer specifications.
2. Run mold for a minimum of one ½ hour with specified resin to allow process to stabilize prior to collecting sample parts.
3. Collect and deliver 2 sample shots to QA for visual inspection to ensure that parts meet visual quality criteria prior to continuing sample. Parts and reports to be retained by Quality Department.

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4. Complete “Water Flow-GPM” Tab on the **Mold Sampling Worksheet**.
5. Perform the following tests on the **Mold Sampling Worksheet** if applicable.
  - a. Gate Freeze Study.
  - b. Cavity Balance & Tip Delta.
  - c. In mold Rheology / Speed linearity.
6. Perform ½ hour dry cycle, to test mold functionality. This may be performed while waiting for QA approval of submitted parts.
7. After QA approval, restart machine to developed process and let stabilize a minimum ½ hour, then collect 2 short shots @ 90% fill and 18 sample shots, bagged individually, and identified with mold #, date and sample level to be distributed as listed below.
  - a. 1 Short shot and 12 sample shots to be delivered to program manager.
  - b. 1 short shot and 3 sample shots to be retained by process engineering for a minimum of 60 days from date of sample.
  - c. 3 sample shots to be submitted to QA for visual and dimensional inspection of critical dimensions as per product drawing.
  - d. The required quantities may differ if specified on **Mold Sample Work Order**.
8. Process engineer to complete the “General Information” and “Process Parameters” tab on the **Mold Sampling Worksheet**.
9. Save the “**Mold Sampling Worksheet**” in the following filename format: “SAMPLE\_MOLD#\_MMDDYY.xls” e.g: “SAMPLE\_FB-001-01\_010117” to the corresponding customer product folder.
10. Complete **Mold Sample Feedback Report** and save file to the corresponding customer product folder in the following file format “MSFR\_MOLD#\_MMDDYY” e.g. “MSFR\_FB-001\_010117”

**5.4 Level 3 Sampling**

1. Develop process utilizing **Standard Molding Practices** to produce a visually acceptable part that meet customer specifications.
2. Run mold for a minimum of one ½ hour with specified resin to allow process to stabilize prior to collecting sample parts.
3. Collect and deliver 2 sample shots to QA for visual inspection to ensure that parts meet visual quality criteria prior to continuing sample. Parts and reports to be retained by Quality Department.
4. Complete “Water Flow-GPM” Tab on the **Mold Sampling Worksheet**.
5. Perform the following tests on the **Mold Sampling Worksheet** if applicable.
  - a. Gate Freeze Study.
  - b. Cavity Balance & Tip Delta.
  - c. In mold Rheology / Speed linearity.
6. Perform ½ hour dry cycle, to test mold functionality. This may be performed while waiting for QA approval of submitted parts.
7. After QA approval, restart machine to developed process and let stabilize a minimum ½ hour, then collect 2 short shots @ 90% fill and 18 sample shots, bagged individually, and identified with mold #, date and sample level to be distributed as listed below.



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- a. 1 Short shot and 12 sample shots to be delivered to program manager.
- b. 1 short shot and 3 sample shots to be retained by process engineering for a minimum of 60 days from date of sample.
- c. 3 sample shots to be submitted to QA for visual and dimensional inspection of critical dimensions as per product drawing.
- d. The required quantities may differ if specified on **Mold Sample Work Order**.
- 8. After QA Visual and dimensional approval, perform a 4 hour sample run, document all stops and reasons,
  - a. Collect and individually bag 6 shots at beginning, every hour and end of run.
  - b. Identify shots with mold #, date and time collected.
  - c. Submit all 30 shots to program manager to distribute to customer.
  - d. The required quantities may differ if specified on **Mold Sample Work Order**.
- 9. Process engineer to complete the “General Information” and “Process Parameters” tab on the **Mold Sampling Worksheet**.
- 10. Save the “**Mold Sampling Worksheet**” in the following filename format: “SAMPLE\_MOLD#\_MMDDYY.xls” e.g:”SAMPLE\_FB-001-01\_010117” to the corresponding customer product folder.  
Complete **Mold Sample Feedback Report** and save file to the corresponding customer product folder in the following file format “MSFR\_MOLD#\_MMDDYY” e.g. “MSFR\_FB-001\_010117”

**6. References**

**Texas injection Molding Sampling Guide**

**7. Definitions**

Identify and define frequently used terms or acronyms. Provide additional and/or relevant information needed to understand this SOP.

**Standard Molding Practices** – Scientific molding methods using standard decoupled molding process and performing necessary studies to optimize process as describe by the injection molding industries foremost expert in processing, RJG.

**Sample Shots** – A sample shot consist of all cavities not to include runners.

**REVISION HISTORY**

Revision	Date	Description of change
0	6/21/17	Draft
1	6/21/17	Initial release
2	7/25/18	Re-format to match appearance of other QMS documentation (no content changes)