# WAR-090

## APPENDIX A: Switching Sampling Inspection Levels

### 1. Tightened Inspection to Normal Inspection

When tightened inspection is in effect, normal inspection will apply for the next delivery when five (5) consecutive lots of packaging materials have been considered acceptable from a given supplier for a given class of products.

### 2. Normal Inspection to Tightened Inspection

When normal inspection is in effect, tightened inspection will apply for the next delivery when two (2) out of five (5) consecutive lots of packaging materials from the same supplier have been rejected for a given class of products (only original lots considered, not re-submitted lots).

### 3. Normal Inspection to Reduced Inspection

When normal inspection is in effect, reduced inspection will apply to the subsequent delivery if the previous ten (10) or more consecutive lots of packaging materials from the same supplier have been approved on normal inspection for a given class of products.

### 4. Reduced Inspection to Normal Inspection

When reduced inspection is in effect, normal inspection will apply if any of the following occur:

1. A lot of packaging material is rejected.
    - When the previous delivery of packaging materials from an approved supplier occurred more than 12 months ago.
    - If a lot of packaging materials is tested on reduced inspection and found to exceed the accepted level of defects but is below the reject level, it will be accepted but the next delivery will be tested on normal inspection.

2. If Quality Assurance advises that normal inspection should be applied for the given supplier.

**APPENDIX B**

**Acceptable Quality Limit (AQL):**
Acceptable quality level (AQL) is defined as the "quality level that is the worst tolerable process average when a continuing series of lots is submitted for acceptance." (Ref. ISO 2859)

Once a manufacturer has studied their process capabilities, the repeatability of what they make, and the statistical ability to trap and capture defects, this is then used to set the Upper limit on any specific defect type. It is then linked to the US Military statistical sampling plan as the process to set the number and frequency of sampling goods to capture the defects from a given production size.

The definitions of the type of defect and the Acceptable maximum level we use are those set by the US Plastic Closure Manufacturers Associations. The below is a simplified version describing the AQL process.

The AQL tells you how many defective components are considered acceptable during random sampling quality inspections. It is usually expressed as a percentage or ratio of the number of defects compared to the total quantity.

It is important to note that AQLs are NOT specifying a quantity of any defect that will always be present in these manufactured goods. They identify that when an issue happens in manufacture. It is the largest quantity of a defect a customer could experience at one point in time.

Key points to remember:
- The acceptable quality level (AQL) is the worst quality level that is tolerable for a product.
- The AQL is used in conjunction with the sampling plans from ISO 2859 to determine
  - The number of cartons to be opened
  - The sample size
  - The number of defects that are acceptable / not acceptable.
- The AQL differs depending on the type of defect being sampled. Critical defects (ones that may represent a greater risk) will have a lower AQL than those considered as minor defects.

**FOR EXAMPLE:**
A particular lot of product is found to have short-shot during molding.

| | |
|---|---|
| Lot size: | 250,000 pieces |
| Total Number of Cartons: | 100 |
| If AQL: | 0.4 (Major defect as per Site Non Conformance definitions) |

AS 1199.1-2003 tells us that:
- For a given lot size with 100 cartons, 10 cartons chosen randomly will need to be sampled.
- For a lot size of 250 000, 800 pieces over those 10 cartons sampled are inspected. i.e., random @80 pieces to be picked from 10 cartons.
- For an AQL of 0.4 (at a normal inspection level), the lot will be rejected if 8 or more defective items are found during sampling. If 7 or fewer defective items are found, the lot is accepted.
- This acceptance criterion will change if the inspection level is set at tightened or reduced.

AQLs for various nonconformities are defined below and/or can be listed separately in the finished items specification (FIS) as agreed with the customer.

**1 NONCONFORMITY DEFINITIONS**

**1.1 Critical (AQL: 0~0.25%, accumulated critical nonconformities: 0.25%)**
A critical nonconformity is:

A. one which judgment and experience indicate is likely to result in hazardous or unsafe conditions for individuals using, handling, or storing the product;

B. one which qualified judgment and experience indicate will cause the product to be in violation of any applicable federal and/or state law or federal regulation.

**1.2 Major (AQL: 0.4~0.65%, accumulated major nonconformities: 0.65%)**
A major nonconformity is:

A. one other than Critical, which would result in obvious failure of the product to fulfil its intended purpose;

B. one other than Critical, which, though unrelated to function, is likely to reduce the saleability of the product; i.e., the major appearance nonconformity;

C. a packing, packaging, or labelling nonconformity, other than Critical, which is likely to result in either product damage or transport, storage, or inventory error;

D. one other than Critical, which judgment and experience indicate will impair the function of downstream automatic processing equipment;

**1.3 Minor (AQL: 1.0~4.0%, accumulated minor nonconformities: 4.0%)**
A minor nonconformity is:

A. one which has no significant effect, discernible or otherwise, on the product's function, but does prevent the product from being what it is supposed to be;

B. one which is not likely to reduce the product's saleability but does indicate poor workmanship;

C. one other than Critical or Major which, though related to the function of the product, does not adversely affect the usability and/or saleability of the product; e.g., a process control nonconformity discernible only to the manufacturer and knowledgeable inspectors;

**1.4 OVERALL accumulated nonconformities (max AQL: 4.65%)**

**APPENDIX C**

**SAMPLING PLAN: (ISO 2859)**

Example: for a hypothetical inspection of a production with 4,000 units, the site inspector has selected level II normal inspection and AQL of 2.5.

In Table A below, the intersection of the respective Lot Size and General Inspection Level indicates sample size code letter L. Then, referring to Table B, we locate row L, which indicates the required sample size of 200 units.

To comply with AQL 2.5, no more than 10 units from that sample size can fail inspection. (Table B).

**Table A:**

SAMPLE SIZE CODE LETTERS

| | General Inspection Levels | | | Special Inspection Levels | | | |
|---|---|---|---|---|---|---|---|
| Lot Size | I | II | III | S1 | S2 | S3 | S4 |
| 2 to 8 | A | A | B | A | A | A | A |
| 9 to 15 | A | B | C | A | A | A | A |
| 16 to 25 | B | C | D | A | A | B | B |
| 26 to 50 | C | D | E | A | B | B | C |
| 51 to 90 | C | E | F | B | B | C | C |
| 91 to 150 | D | F | G | B | B | C | D |
| 151 to 280 | E | G | H | B | C | D | E |
| 281 to 500 | F | H | J | B | C | D | E |
| 501 to 1200 | G | J | K | C | C | E | F |
| 1201 to 3200 | H | K | L | C | D | E | G |
| 3201 to 10000 | J | L | M | C | D | F | G |
| 10001 to 35000 | K | M | N | C | D | F | H |
| 35001 to 150000 | L | N | P | D | E | G | J |
| 150001 to 500000 | M | P | Q | D | E | G | J |
| 500001 and over | N | Q | R | D | E | H | K |

ANSI/ASQ Standard Z1.4 - 2008

**Table B:**

## SINGLE SAMPLING PLANS FOR NORMAL INSPECTION

| Sample Size Code Letter | Sample Size | Acceptable Quality Levels (Normal Inspection) | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.065 | | 0.10 | | 0.15 | | 0.25 | | 0.40 | | 0.65 | | 1.0 | | 1.5 | | 2.5 | | 4.0 | | 6.5 | |
| | | Ac | Re | Ac | Re | Ac | Re | Ac | Re | Ac | Re | Ac | Re | Ac | Re | Ac | Re | Ac | Re | Ac | Re | Ac | Re |
| A | 2 | | | | | | | | | | | | | | | | | | | | | 0 | 1 |
| B | 3 | | | | | | | | | | | | | | | | | | | 0 | 1 | | |
| C | 5 | | | | | | | | | | | | | | | | | 0 | 1 | | | | |
| D | 8 | | | | | | | | | | | | | | | 0 | 1 | | | | | 1 | 2 |
| E | 13 | | | | | | | | | | | | | 0 | 1 | | | | | 1 | 2 | 2 | 3 |
| F | 20 | | | | | | | | | | | 0 | 1 | | | | | 1 | 2 | 2 | 3 | 3 | 4 |
| G | 32 | | | | | | | | | 0 | 1 | | | | | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 |
| H | 50 | | | | | | | 0 | 1 | | | | | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 |
| J | 80 | | | | | 0 | 1 | | | | | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 11 |
| K | 125 | | | 0 | 1 | | | | | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 11 | 14 | 15 |
| L | 200 | 0 | 1 | | | | | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 11 | 14 | 15 | 21 | 22 |
| M | 315 | | | | | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 11 | 14 | 15 | 21 | 22 | | |
| N | 500 | | | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 11 | 14 | 15 | 21 | 22 | | | | |
| P | 800 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 11 | 14 | 15 | 21 | 22 | | | | | | |
| Q | 1250 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 11 | 14 | 15 | 21 | 22 | | | | | | | | |
| R | 2000 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 11 | 14 | 15 | 21 | 22 | | | | | | | | | | |

↑ Use first sampling plan above arrow, if sample size equals or exceeds lot or batch size, do 100 percent inspection.

↓ Use first sampling plan below arrow

**AC** : Acceptance number **Re** : Rejection number

## APPENDIX D: Inspection of Goods on Delivery Form

Item No: _____ Receiving Date: ___/___/___

Description of Product: _____

_____ Identification Labels Printed _____

**Receiving Use Only:**

**Receiving Statement:**
"The description of the goods received matches the **Purchase Order**. The goods are in their original containers and marked with supplier details. There is **NO** physical damage, **NO** contamination evident, and **NO** soiling."

☐ Yes, I agree

Purchase Order No: _____

Supplier Name: _____

Receiving Report No: _____

Manufacturing Lot No: _____

MAPS Lot No: _____

Expiry Date: _____

Quantity Received: _____

No. of Pallets: _____

No. of Containers: _____

_____

Location: _____

Accept: ☐ Reject ☐ (Tick the appropriate box)

Comments: _____

_____

Signature: _____ Date: ___/___/___

Attach Identification Label Here

**Sampling Use Only:**

Laboratory Samples (if applicable): _____

_____

Revised Quantity: _____

Comments: _____

_____

Signature: _____ Date: ___/___/___

**CHECKLIST**

- **GO TO** S:\Document Control\RAW MATERIAL SPECIFICATION TEST REPORTS
- **PRINT** relevant RMSTR
- **READ** RMSTR

| Legend: Y = Yes / N = No / NS = Not Shown | (Check) Delivery Docket | (Check) Container Labels | (Check) C of A | Comments |
|---|---|---|---|---|
| Description Correct? | Y / N / NS | Y / N / NS | Y / N / NS | ..... |
| Grade Correct? | Y / N / NS | Y / N / NS | Y / N / NS | ..... |
| Supplier Correct? | Y / N / NS | Y / N / NS | Y / N / NS | ..... |
| Manufacturer Name Correct? | Y / N / NS | Y / N / NS | Y / N / NS | ..... |
| Manufacturing Plant Correct? | Y / N / NS | Y / N / NS | Y / N / NS | ..... |
| **READ** Lot Number on Containers. Does Lot Number Match? | Y / N / NS | Y / N / NS | Y / N / NS | ..... |
| READ Manufacturing and Expiry Dates on Containers. Do they Match? | Y / N / NS | Y / N / NS | Y / N / NS | ..... |

Signature: _____ Date: ___/___/___

## APPENDIX E: Packaging Material Specification and Test Report Template

| | |
|---|---|
| **Component Name: Printed Aluminium Foil** | **Component Code No:** |
| **Product component used in:** | |
| **Pack Size:** | **Supersedes:** |
| **File No: PMS-XXX-YY.A** | **Finished Goods Code No:** |
| **Control Method: CM-XXX-YY.A** | |

| | |
|---|---|
| **Supplier:** | |
| **Material Description:** | |
| **Foil's slip level:** | **Outside 0.25 – 0.45**<br>**Inside <0.30** |
| **Dimensions:** | **Width of film 178 mm +/- 1mm.**<br>**Repeat length for registration mark 205 mm +/- 1 mm/per repeat/ +/-2 mm over 1025 mm**<br>**Core internal diameter 76 mm** |
| **Weight:** | **Maximum 12 - 13 kg** |
| **Template Number:** | **As per artwork drawing** |
| **Print Details:** | **As per artwork** |
| **Pre-press Material:** | **Electronic file: Adobe Illustrator** |
| **Colours:** | **As per approved artwork** |
| **Sampling:** | **According to SOP WAR-010** |

| Test Name | Method | Specification | Result | Analyst | Book page ref. |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| | | |
|---|---|---|
| **Analysis Conducted By:** | | |
| **Name:** | **Sign:** | **Date:** |
| **Analysis Checked By:** | | |
| **Name:** | **Sign:** | **Date:** |
| **Delivery Released:** | **Delivery Rejected:** | |

| | | |
|---|---|---|
| **Prepared By:**<br>(Technical Service/Artwork) | **Sign:** | **Date** |
| **Checked By:**<br>(Procurement) | **Sign:** | **Date** |
| **Approved By:**<br>(QA) | **Sign:** | **Date** |