 ACME COSMETIC COMPONENTS	Procedure Name:	Metal Specifications
	SOP Section: III	SOP Number: 4
	Revision: 12	Effective Date 7/19/2023
	Written By: Peter Laurie Quality Manager	Approved By: David Cunningham President
	Page 1 of 6	

Section 1

SCOPE

The contents of this procedure apply to the use of metal in the manufacturing process, as well as to any metal used by third parties on behalf of the Company.

Section 2

PURPOSE:

This document is intended to provide guidance as to the key characteristics required for metals that would be acceptable for use in the production of products for ACME customers. It is not intended to be all inclusive or prescriptive, but rather a generalized specification that will assure conformity with current practice.

Section 3

TERMS, DEFINITIONS AND NOTES:

N/A

Section 3a

REFERENCES:


ASTM A623 & A624 (tinplate specification, latest revision)

ASTM B209 (aluminum specification, latest revision)

Section 4

PROCEDURE/INSTRUCTIONS:

The user will evaluate the use of metals against the specifications laid out below. It is recognized that variation will exist between different metals and suppliers, but it is necessary to ensure that metal used to press ACME pans meet the critical characteristics laid out below, to assure the consistency of pans produced lot to lot.

 ACME COSMETIC COMPONENTS	Procedure Name:	Metal Specifications
	SOP Section: III	SOP Number: 4
	Revision: 12	Effective Date 7/19/2023
	Written By: Peter Laurie Quality Manager	Approved By: David Cunningham President
	Page 2 of 6	

50/20 DIFFERENTIALLY TINPLATED STEEL:

Approved Mills

Mill	Location
United States Steel, Gary	USA
Arcelor Mittal, Weirton	USA
ThyssenKrupp, Rasselstein	Germany
CSN	Brasil
KG DongBu	Korea
TonYi Industrial Corp.	Taiwan

Annealing Process: tinplate is to be batch annealed unless otherwise agreed upon with supplier.

Coil widths: Coils are trimmed from master coils to the ordered width. Slit dimensions will not vary by more five thousandths of an inch (+/- 0.005 in). Master coil slit widths will not vary by more than 1/32 of an inch (+/-0.0312).

	No. America	China
Minimum inner diameter	16 inches.	508 mm
Maximum outer diameter	42 inches	1060 mm

Surface Finish: 7C Bright—A smooth finish with grit lines. The surface roughness will range between 10 and 25 μ in. Ra [0.254 to 0.635 μ m Ra].


Temper Designation: T-1 (45-53 HR30T on 30T scale) - The Rockwell Hardness range for the T-1 designation is between 45 and 53.

Tinplate Coating Designation: 50/20 (0.25/0.10 lb/base box). See latest revision of ASTM spec for tolerances.

Thickness Tolerances: All tinplate must adhere to the latest revision of the ASTM specifications for thickness tolerances.

General specifications:

- Homasote spacers will be put between each coil.
- Slit tinplate Coils will unwind clockwise.

 ACME COSMETIC COMPONENTS	Procedure Name:	Metal Specifications
	SOP Section: III	SOP Number: 4
	Revision: 12	Effective Date 7/19/2023
	Written By: Peter Laurie Quality Manager	Approved By: David Cunningham President
	Page 3 of 6	

- Markings will be placed on the side with a lower tin coating to differentiate the sides of the metal (DT Markings).
- All coils received into the facility will be appropriately marked to maintain traceability requirements.

ALUMINUM:

Approved Mills

Mill	Location
Novelis, Clayton	USA
Aluminum Corporation of China Limited, CHALCO	China

ACME alloy designation: 3000 series or equivalent. See ASTM standard B209 for more details.

Alloy construct:

	Al	Si	Fe	Cu	Mg	Mn	Cr	Zn	Ti	Pb	V
ACME alloy	95.8-98.8	0.50 - 0.90	0.60 - 1.00	0.05-0.20	0.00-0.20	0.00-1.50	0.00-0.05	0.01-0.10	0.00-0.08	0.00-0.1	0.00-0.05
		degrees C	degrees F			g/cm ³	lbs/in ³				
Melting Point:		621-657	1150-1210		Density:	27.1-27.4	0.98-0.99				

Annealing: aluminum is to be batch annealed unless otherwise agreed upon with supplier.

Mechanical properties for the finished material are to be targeted based on the ranges specified in the most recent revision of the ASTM B209 specifications.


Properties of the coating are to be targeted based on the following:

Coated with the same material on both sides:

IF epoxy: Valspar 4810A22M or equivalent

IF polyester: Jamestown Coating Technologies KO051J (“BPA Free Release Coating”) or equivalent

The film weight should be viscosity controlled during the application to achieve a film weight of 2mg/sq ± 0.2 mg/sq inch (a range of 1.8 mg/sq inch to 2.2 mg/sq inch) dry applied per side. The wet sheet is floated on a cushion of air through an oven to dry and cure the coating, achieving metal temperatures of approximately 500 degrees F (or as specified by the manufacturer and the supplier to achieve optimal cure).

 ACME COSMETIC COMPONENTS	Procedure Name:	Metal Specifications
	SOP Section: III	SOP Number: 4
	Revision: 12	Effective Date 7/19/2023
	Written By: Peter Laurie Quality Manager	Approved By: David Cunningham President
Page 4 of 6		

Coil widths: Coils are trimmed from master coils to the ordered width. Width dimensions for slit coils will not vary by more five thousandths of an inch, +/- 0.005", ±0.127mm Master coil slit widths will not vary by more than 1/32 of an inch, +/-0.0312", 0.794mm.


	No. America	China
Minimum inner diameter	16 inches.	508 mm
Maximum outer diameter	42 inches	1060 mm

Temper designation: H14 - cold work that gives specific tensile strength (known as ½ Hard)

Thickness tolerance: ordered thickness on master coils will not vary from desired specification by more than five percent (+/- 5.00%).

General specifications:

- Homasote spacers will be put between each slit coil.
- Slit Aluminum coils will unwind counterclockwise.
- All coils received into the facility will be appropriately marked to maintain traceability requirements.

 ACME COSMETIC COMPONENTS	Procedure Name:	Metal Specifications
	SOP Section: III	SOP Number: 4
	Revision: 12	Effective Date 7/19/2023
	Written By: Peter Laurie Quality Manager	Approved By: David Cunningham President
Page 5 of 6		

DEFECT CLASSIFICATION

Defects and acceptable quality levels (AQLs) will be developed using the following definitions as guidelines:

Category	Description	Maximum AQL
CRITICAL	A defect that is likely to result in a hazardous or unsafe condition for the individual using, maintaining, or depending on the components. These faults should be totally absent. However, if any such critical fault is found during a normal inspection, the batch must be considered rejected until proven otherwise by a 100% QA inspection.	NDA (No Defects Allowed)
MAJOR	A defect that will, or is likely to result in a failure to function or which will reduce the usage of the unit for its intended purpose. This also applies to defects which do not allow for normal operation conditions during production or which are objectionable or unattractive to the consumer.	2.50%
MINOR	A defect that is a departure from the established standards, having no significant effect on the production process or the usability or appearance of the units.	4.00%

DEFECT EXAMPLES

CRITICAL DEFECTS


1. Severe corrosion
2. Incorrect or missing markings.
3. Missing lacquer/coating or incorrect material.

MAJOR DEFECTS

1. Off specifications
 - a. Slit Widths
 - b. Thickness
2. Distorted, dented, heavily scratched, or punctured metal
3. Corrosion
4. Foreign matter which can be removed via air blowing.
5. Stains (including stains caused by lubrication)
6. Mixed slit widths in on pallets

MINOR DEFECTS

1. Small dents/marks that do not interfere with production process
2. Small scratches (with little/no aesthetic damage to product)

 ACME COSMETIC COMPONENTS	Procedure Name:	Metal Specifications
	SOP Section: III	SOP Number: 4
	Revision: 12	Effective Date 7/19/2023
	Written By: Peter Laurie Quality Manager	Approved By: David Cunningham President
	Page 6 of 6	

Section 5

EQUIPMENT

N/A

Section 6

SAFETY (incl. LOCKOUT TAGOUT requirements)

N/A

REVISION LOG

Revision Number	Date of Revision	Change(s)
Original	N/A	N/A
01	04/12/17	Added Confidentiality watermark
02	11/15/17	Removed petrolatum, added Valspar reference (on Aluminum)
03	01/18/18	Added core inner/outer diameter for China slitting
04	05/17/18	Added coating specification(s) for aluminum
05	01/15/19	Amplified coating film thickness specs for aluminum, added alloy designation to 3000 series.
06	06/26/19	Added alloy constituents to reflect ACME alloy specifications
07	10/14/19	Added polyester specifications to aluminum description
08	12/30/20	Added approved mills listing for materials
09	01/12/21	Added mechanical property clarification to aluminum, CHALCO (CN) to approved suppliers
10	09/01/21	Added OCC and TonYi to the approved mill list
11	7/28/22	Updated units to include both imperial and metric. Standardized mill nomenclature.
12	7/18/2023	Revised aluminum spec requirements to match current ASTM B209 and specify coating application range.