Global Shipper Label Policy

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Reason for Issue
Updates previous version (F) dated February 2022. Includes specification of LOT/Mfg Date/Expiration Date sequence and corresponding label image updates, specification of sales restriction statement placement, and additional allowance for barcode height.

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Section I - Introduction

Letter from Management

In today's global, multilingual marketplace, properly identifying 3M products on shipping containers is critical to improve our speed to market. As such, 3M has developed specific requirements for labeling shipping container packaging for 3M finished good products. The development of the original requirements was coordinated by a cross functional team made up of many 3M business functions including: Corporate Identity, Corporate Marketing, Corporate Logistics/Supply Chain, 3M General Legal Counsel, Corporate Regulatory, 3M Packaging Solutions, as well as input from several businesses and manufacturing operating units.

These requirements provide numerous benefits to 3M, including:

- Reduced risks associated with non-compliance to legal, regulatory, customs and/or other requirements,
- Faster, more accurate distribution of 3M products,
- Reliable identification of 3M products,
- Standardization of packaging through design standardization,
- Stronger 3M identity and image around the world,
- Enhanced brand awareness and brand equity,
- Support for the implementation of on-demand printing solutions.

This shipper label policy provides requirements, guidelines, instructions, and examples that will support the design, development, and implementation of 3M shipper labels. The expectation is that 3M businesses assure compliance to the requirements on all new products and related updates to existing products.

Thank you for your support in streamlining 3M's shipping container labeling processes to increase speed to market and our competitive position.

Sponsorship:

Lisa Price
Global Design Operations Director

Section II – Introduction to Policy

Introduction

The Global Shipper Label Policy was developed to establish a comprehensive set of requirements to be used uniformly across all operating businesses within 3M.

Scope

The current scope of the Global Shipper Label Policy is intended to cover labeling requirements on 3M branded shipping container packaging which is common to most finished good items and non-finished good items sold globally. Excluded from this policy are the following:

- Product labels.
- Promotional labels.
- Private (customer-specific) labels.
- Dangerous Goods labels (for regulated items).
- Transport/Shipment labels.
- General shipping and handling labels.

Note:
- 3M businesses that are operating as independent legal entities, usage/compliance with this policy is optional.
- Due to the critical function of shipper labels throughout the whole 3M supply chain, it is important that 3rd-parties acting on 3M's behalf also adhere to this policy for shipper labels used to transport product in the 3M supply chain.

Supported Print Technologies for 3M Shipper Labels

When implementing 3M shipper labels, there are three primary print technologies this policy is intended to support. These print technologies include:

1. **"On-Demand"**: This print technology is used when shipper label artwork is developed through the use of software and printed to various output devices (commonly thermal transfer printing systems) that are then applied to packages which are classified as the shipping unit.
2. **Preprinted Labels:** This print technology is used when shipper label artwork is developed for commercial prints (typically flexography) that are then applied to packages which are classified as the shipping unit.
3. **Direct Print:** This print technology is used when shipper label artwork is developed for direct print (typically flexography) packaging which is classified as the shipping unit.

Throughout this policy, provisions have been included to address the inherent differences that exist across the various print technologies outlined above. Based on these differences, it is important to consult the 3M Global Labeling team to evaluate each print technology options and implement optimized labeling solutions.

Policy Maintenance

The Global Shipper Label Policy, and the communication around it, are the responsibility of the Global Labeling organization. The identification and prioritization of changes to shipper labeling requirements shall be the responsibility of several functions, while Global Labeling will have the responsibility of compiling and implementing the changes through on-going revisions and subsequent publications to the policy.

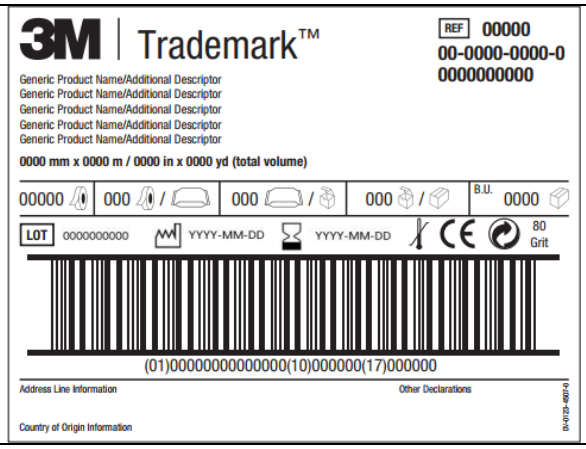
Note: Subsequent reviews/updates to the policy will be performed on either a two-year basis or based on specific timelines as needed.

Section III – Shipper Label Template

Introduction

From a design and layout perspective, a template was developed to organize the pieces of information contained on a 3M shipper label. Shipper label data is organized by a "panel" and "zone" approach where **panels** are used to group common data elements and **zones** are used to isolate, or identify, specific data elements contained within a given panel. For visualization purposes, generic templates and other references have been included within this policy to support the communication of related requirements. **Note:** Visual references contained throughout this document are **NOT** to scale, and should be used strictly for content referencing purposes.

Shipper Label Display Panels

Product Identification Display Panel	
Logistics Display Panel	
Declarations Display Panel	

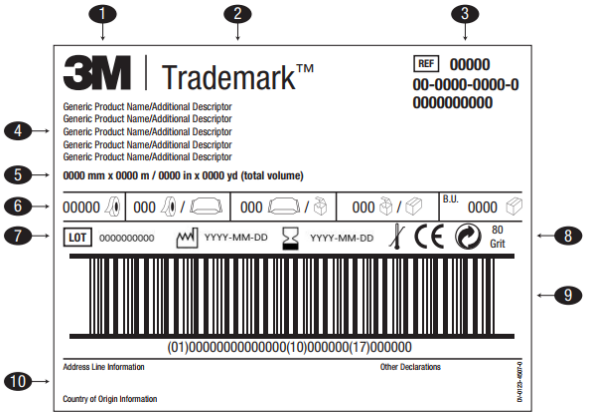
Shipper Label Data Zones

Required or important information that does not qualify or fit under any of the shipper label data zones outlined below, must be placed in either an Expansion Zone, or elsewhere on the shipping container (refer to "Section V – Expansion Zone" of this policy for more detailed information).

Product Identification Display Panel
1. Brand Data Zone
2. Trademark Data Zone
3. Product Identifiers Data Zone
4. Generic Product Name/Additional Descriptor Data Zone
5. Net Contents/Weights and Measure Data Zone

Logistics Display Panel
6. Pack-Out Data Zone
7. Manufacturing Data Zone
8. Markings Data Zone
9. Barcode Data Zone

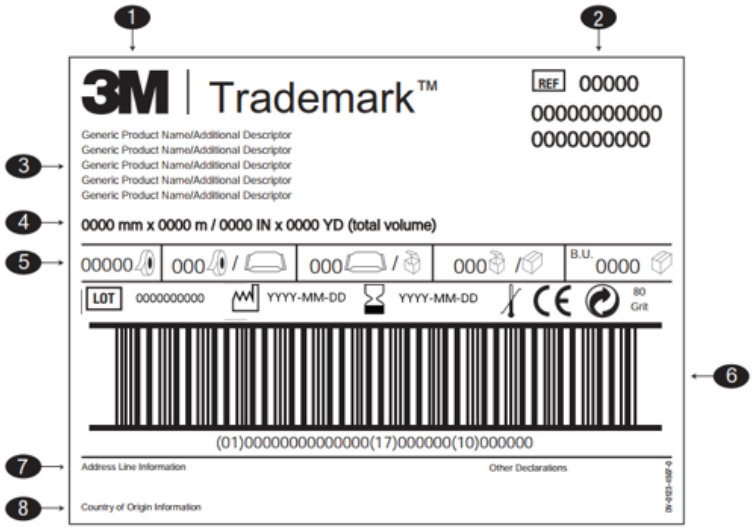
Declarations Display Panel
10. Declarations Data Zone



Shipper Label Minimum Required Content

With few exceptions, the minimum required content that must be included on a shipper label is the following:

1. Brand Information[1]
2. Declaration of Identity: Product Identifier Information, including 3M stock number and/or SAP material ID
3. Generic Product Information
4. Declaration of Quantity: Net Contents/Weights and Measures (Volume, Measurement, or Count)
5. Pack-Out Information[2]
6. Barcode[3]
7. Declaration of Responsibility: Manufacturer (Company Name and Address)
8. Country of Origin



[1] Exception case: Private Labeling shipper labels do not need to include brand information.

[2] Exception cases: 1) Shipper labels for industrial chemicals which are used for business-to-business transport and not shipped to final end customers do not require pack-out information; 2) Shipper labels that do not have a pack level below the shipper or pallet level (6S or 6P) do not require pack-out information.

[3] Exception cases: Variable packed and variant configurable products do not require a barcode.

Reference: NIST Handbook 130 (current year)

Note: Refer to "Technical Appendix A: Shipper Label Data Elements" located in the back of this policy for detailed information surrounding business rules, exception cases, and other related requirements associated with data on a 3M shipper label.

Section IV – Shipper Label Design Guideline Summary

Introduction
The section provides a summary of key 3M shipper label design guidelines. Related detail and context can be found in the applicable sections of this policy document.

Typography
The 3M Circular font has been selected as the standard typography for Shipper label content. The Arial Unicode MS font is an acceptable alternative typography. Arial Unicode MS font is recommended for global on-demand labels because it can accommodate double-byte characters which are used in some foreign languages. The 3M Circular font does not support double-byte characters. 3M Circular font can be used on on-demand labels if the labels will not have any double-byte character language requirements.

Barcode Symbology
The required symbology type for 3M branded shipping container packaging is the GS1 1D barcode. This allows for the use of either GS1-128 or ITF-14 symbologies, depending on application. The exception case is when the shipping container is also defined as the consumer unit for non-HCBG products, in which case either the EAN-13 or UPC-A symbologies are required. The UPC-A barcode symbology is to be used for US retail applications, and the EAN-13 symbology should be used for international retail applications.

Lot/Batch Number
Products/materials that are batch managed or default batch managed require a Lot/Batch Number on the shipper label. The lot/batch number must conform to the following standards:
- Must be 10 characters or less
- Must be limited to alphanumeric characters – cannot contain spaces, slashes, dashes, etc.
- Must not start with a zero (0), if entirely numeric

Date Format
The use of Date format YYYY-MM-DD is recommended for both Expiration and Manufacturing Dates. However, it is recognised that date format requirements may vary based on region, customer, or regulatory requirement. The date format used on barcodes, printed data, and internal SAP data must match.

Shipper Label Pictograms
The use of pictograms is strongly recommended as a substitute for text when developing content in the Pack-Out Data Zone. The use of pictograms is especially useful when dealing with multilingual shipping containers.

Section V – Expansion Zone

Introduction

The inclusion of an Expansion Zone as part of the 3M shipper label template was designed to allow for the inclusion of additional information that is not covered under one of the predefined data zones within a given display panel. The information outlined below was developed to assist users with the proper implementation of an Expansion Zone. **Note:** The use of an Expansion Zone is optional.

Expansion Zone Content Options

Examples of information commonly reserved for the Expansion Zone include, but may not be limited to:

- Risk & Safety or Warning Statements
- Hazard/UN-Marking Data[1, 7]
- Co-Brand Information[2, 5]
- Information needed when the shipper label is the only level of packaging[3]
- Product content definitions[4]
- Customer-specific definitions[6]
- Sales restriction statements (e.g., 'Not for Sale in …', 'For Industrial Use Only')[8]

1 Used when 3M products are classified as "Hazardous for Transport" items (e.g.: US – FCS Audit Code 3).
2 Including any applicable Trademark attribution statements.
3 In some situations, the shipper label also serves as a primary label. Examples of such packaging systems include, but may not be limited to: drums, totes, display units and bulk packages.
4 Example: Product is a kit/deal that contains a variety of individual products that require detailed descriptions and/or definitions in order to properly identify the 3M product.
5 It is important to note that relationships with 3rd Parties (dealers, distributors, companies, etc.) have very specific requirements concerning the visualization of 3M's identity and any 3rd party's identity. Due to the fact that they **MUST** remain separate and distinct, Co-Branding information on 3M shipper labels has been located in the Expansion Zone (a confusing visual relationship can have detrimental legal consequences for 3M and its brands).
6 Examples: Customer part numbers, customer barcodes, or other pieces of customer data that will be considered additive to the standard 3M shipper label.
7 Reference "Technical Appendix E: Typeset Copy Requirements for Hazardous (User) Labeling" located in the back of this policy for detailed information surrounding business rules and other related requirements associated with formatting requirements for dangerous goods text on 3M shipper labels.
8 Sales restriction statements should be placed in the default Expansion Zone option 1 location shown below. Legal statement text should be bolded for prominence.

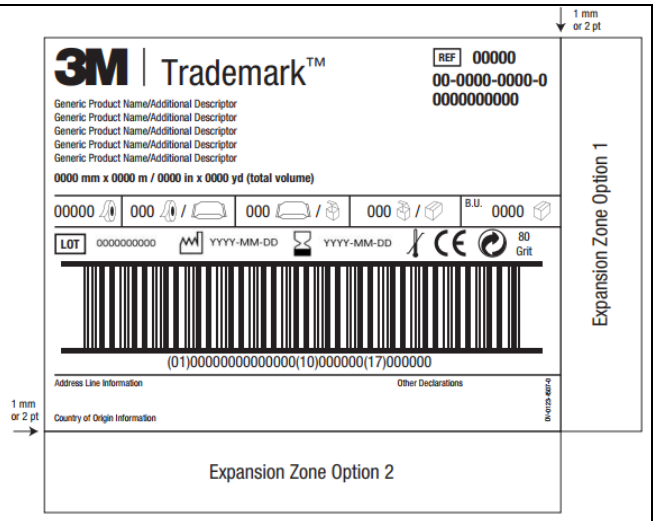
Notes:
- There are no specific requirements that limit the size/area of an Expansion Zone.
- When implementing Co-Brand information, the 3M brand **MUST** have prominence; otherwise, the shipper should be classified as a "private-label" and out of scope of this policy.

Expansion Zone Layout Options

When dealing with layout options, provisions have been included in this policy to cover both the location and the orientation of content located within the Expansion Zone.

Options for Expansion Zone Location

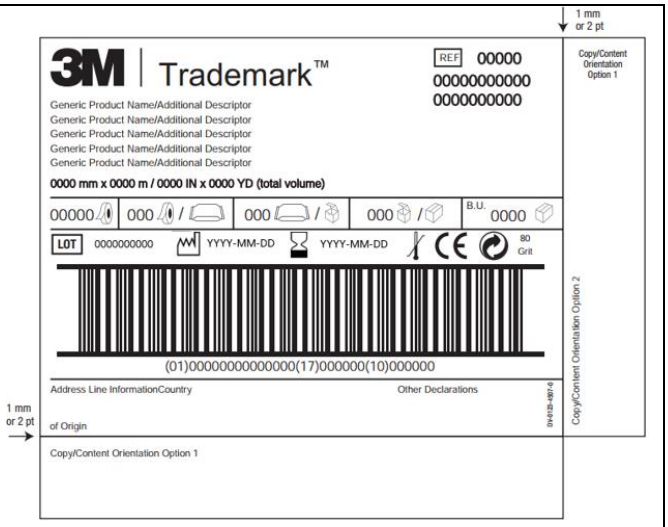
Placement of an Expansion Zone can exist in one of two areas on a shipper label. These placement options are as follows:

Placement Option 1 (DEFAULT): Adjacent (right side) of the shipper label template.	
Placement Option 2 (LIMITED USE ONLY): Adjacent (bottom) of the shipper label template. **Note:** This placement option may **ONLY** be used when the shipping container will **NOT** be conveyorized anywhere throughout the supply chain due to compliance with automation used in the scanning of barcodes. This situation exists when shipping containers are too large to be placed on conveyorization systems. In general, this would include all oversized packages (specific examples: drums and pails).	

Note: When incorporating an Expansion Zone on a 3M shipper label (regardless of placement option), it is **REQUIRED** that a line (rule) be placed between the shipper label and the Expansion Zone to visually separate Expansion zone data from the rest of the shipper label. The required thickness of this line (rule) **MUST** be 1 mm or 2 pt.

Orientation Options for Typeset Copy/Content within the Expansion Zone

Information contained in the Expansion Zone can be oriented in one of two ways on a shipper label. These orientation options are as follows:

Orientation Option 1: All typeset copy/content is oriented as "right reading". **Note:** If the Expansion Zone is located at the bottom of the shipper label, orientation of **ALL** copy/content to default to "right reading".	
Orientation Option 2: All typeset copy/content is oriented 90° counterclockwise.	

Section VI – Design and Layout Requirements

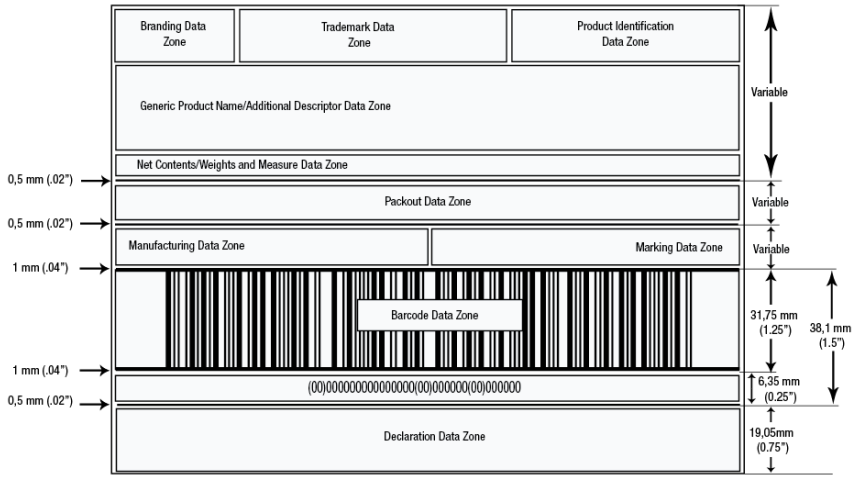
Introduction

This section provides information which is useful when beginning the process of designing a shipper label. For ease of referencing, this section has been broken into two sub-sections. These sub-sections cover both **Layout** and **Typography** Selection.

Layout Requirements

It is important that prescribed scaling between all visual elements on the shipping container label be maintained. The size relationship is important for maintaining visual consistency as well as compliance to location or placement of the various data elements on the shipper label. The visuals provided below are intended to show the proportional relationships between each of the three primary display panels, and in certain cases, specific data zones. See "Technical Appendix G: Label Examples and Additional Layout Options" for more layout options.

SUPPORTED PRINT TECHNOLOGY: PREPRINTED AND "ON-DEMAND" LABELS

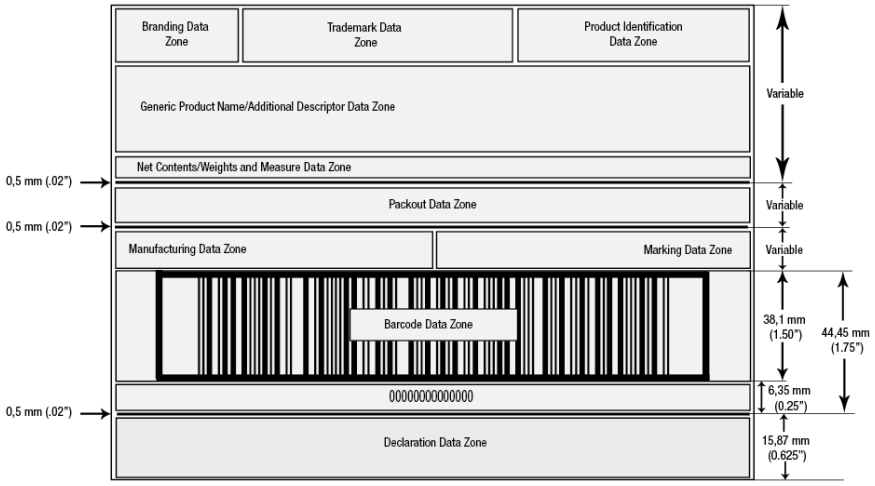


Note: Areas identified as "Variable" will either increase or decrease in size based on content requirements.

Note: Some software applications available in the marketplace used to create barcode symbols have limited capability to manipulate the bearer bars in order to extend them across the entire width of the label artwork area. In this situation, it is acceptable to incorporate barcode data on a shipper label utilizing one of the two format options outlined below.

Format Option 1	Format Option 2
	
Preferred Layout	Alternate Layout

SUPPORTED PRINT TECHNOLOGY: DIRECT PRINT



Notes:

- Areas identified as "Variable" will either increase of decrease in size based on content requirements.
- Barcode printing plates for direct print on substrates **MUST** have bearer bars that completely surround the barcode symbol (regardless of symbology type).
- When printing vertical bars, ensure that required space for quiet zone is maintained (refer to "Technical Appendix B: Barcodes" for additional details pertaining to barcode design/layout requirements).
- Line thickness used to create border (bearer bars) to be set at: 3,18 mm (0.125 inches).

Typography

Typography is an important element in 3M's overall brand identity system. The 3M Circular font has been identified as the standard typography for Shipper label content. However, 3M Circular font does not support double-byte characters, which are found in some foreign language alphabets. The Arial Unicode MS font is an acceptable alternative typography. Arial Unicode MS font is recommended for global on-demand labels because it can accommodate double-byte characters. 3M Circular font can be used for on-demand labels, if the labels will not have any double-byte character language requirements. All typeset copy found on the shipper label **MUST** comply with the requirements set forth in this section of the policy.

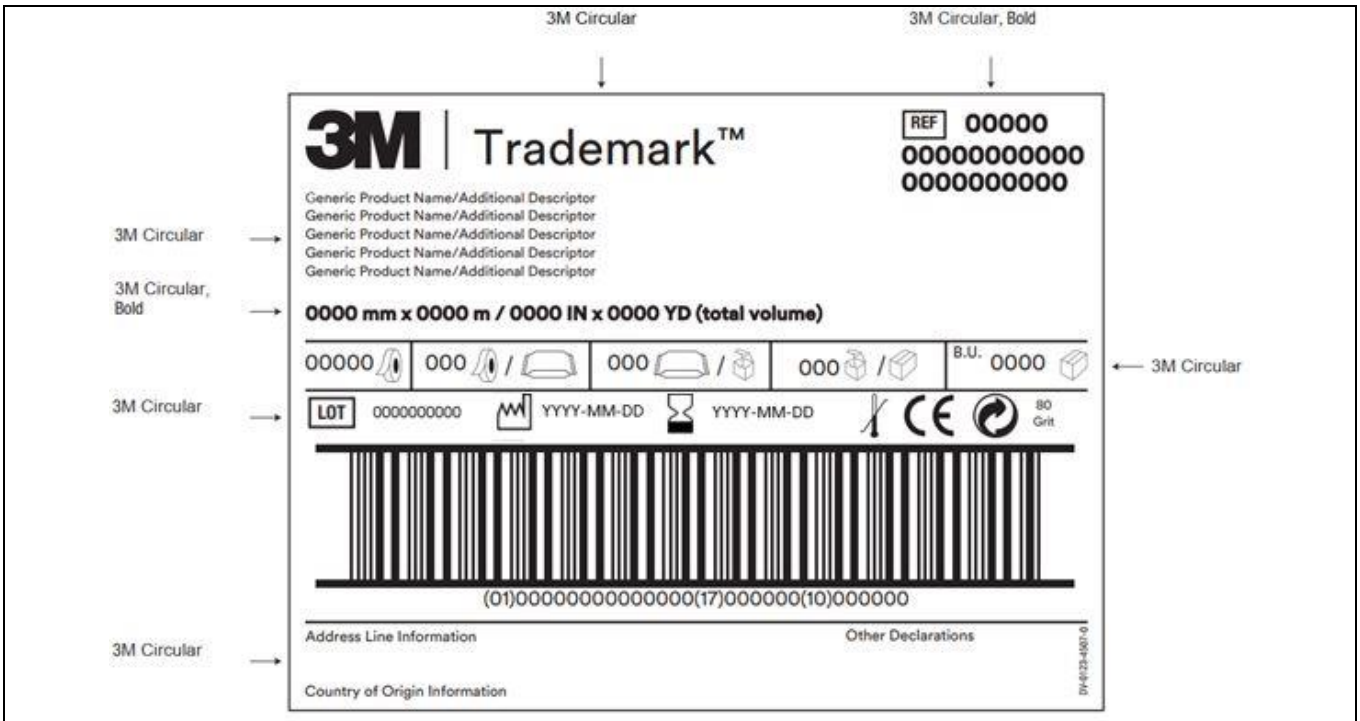
Font Utilization Requirements

Typography Specifications:

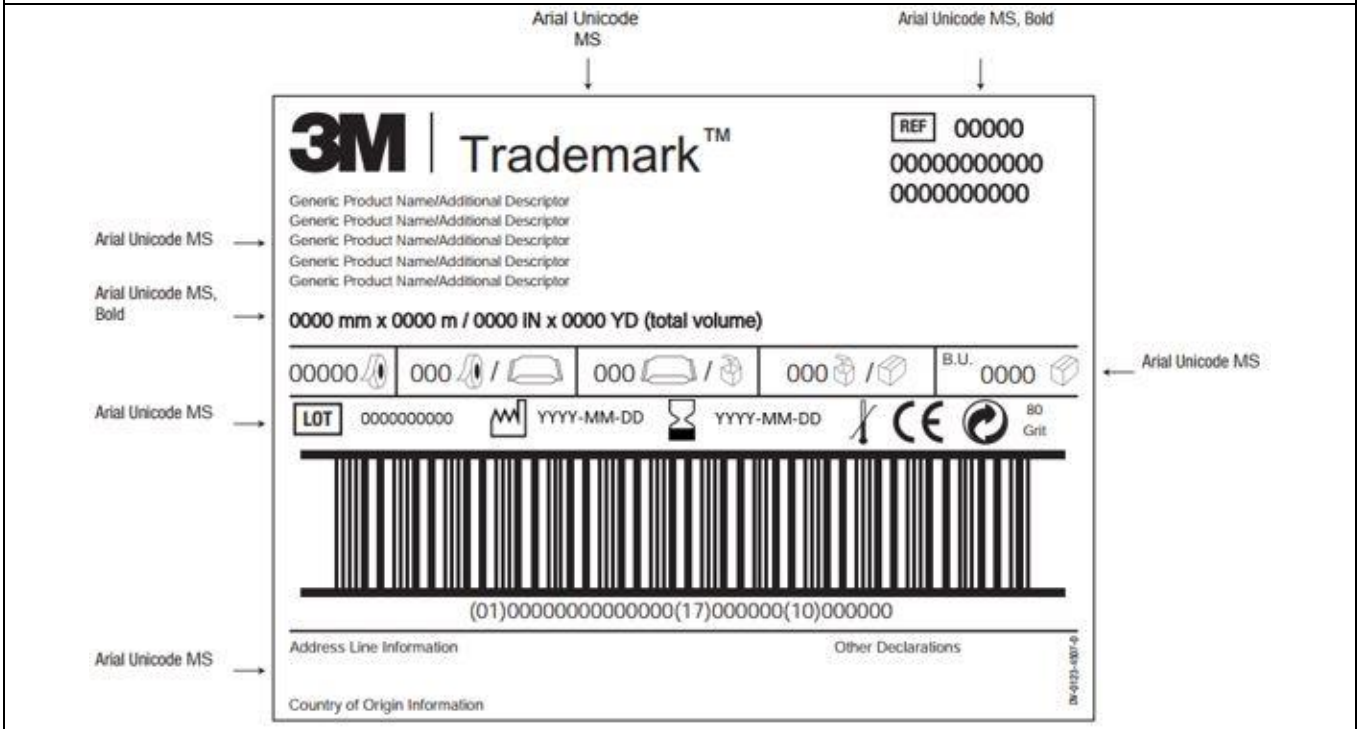
- **Trademark:** 3M Circular; Arial Unicode MS font for on-demand labels
- **Product Identifiers:** 3M Circular – Bold; Arial Unicode MS – Bold font for on-demand labels
- **Generic Product Name/Additional Descriptor:** 3M Circular; Arial Unicode MS font for on-demand labels
- **Net Contents/Weights and Measure:** 3M Circular – Bold; Arial Unicode MS – Bold font for on-demand labels
- **Quantity/Pack-out/Billing Unit:** 3M Circular; Arial Unicode MS font for on-demand labels
- **Manufacturing Data:** 3M Circular; Arial Unicode MS font for on-demand labels
- **Declaration Data:** 3M Circular; Arial Unicode MS font for on-demand labels
- **Expansion Zone:** 3M Circular; Arial Unicode MS font for on-demand labels

Notes:

- When utilizing "on-demand" as a print technology to produce shipping container labels, default to using the Arial Unicode MS font for **ALL** typeset copy as it supports both single-bit and double-bit character sets. Also, many on-demand technologies (e.g. thermal transfer), **ONLY** support the use of True-Type fonts vs. PostScript-Type fonts.



Shipper Label Using 3M Circular Font



Shipper Label Using Arial Unicode MS Font

Section VII– Design and Development Requirements

Introduction

Most 3M shipping containers are printed with, at minimum, a (1) Corporate Logo, and in some cases, additional printed elements including, but not limited to: (2) additional labels or preprinted information on the shipping container, (3) and/or transport/shipment labels that may exist directly on the shipping container. When designing 3M shipper labels for shipping containers, several design considerations should be assessed as part of the overall shipper label design and development process. Due to complexities that can exist, it is important to consult 3M Packaging Solutions in all planning and development activities in order to assure that all your shipping container product package labeling needs are met.

Design and Development Steps (high-level activities):

1. 3M Packaging Solutions, together with the business, will determine optimal print process ("on-demand", preprinted label, or direct print).
2. 3M Packaging Solutions will determine sizing requirements based on one or many of the following criteria:
    - Available space on the shipping container.
    - Style of the shipping container (different shipping container styles may dictate placement of a shipper label(s) on the shipping container).
    - Content requirements (this becomes increasingly challenging when dealing with multilingual and/or significant amounts of additional information).
    - Additional labeling/marking requirements that may be needed on the shipping container (e.g.: Dangerous Goods labels for regulated items, Transport/Shipment labels, general shipping and handling labels, etc.).

    Notes:
    - Criteria outlined above are for representative purposes only (additional criteria may apply).
    - 3M Packaging Solutions works with Sourcing to specify common label sizes and label materials.
3. 3M approved resource (graphic designer) creates the shipper label artwork.

Section VIII – Barcodes

Introduction

It is 3M policy to assign a Global Trade Identification Number (GTIN) at the shipper level which is compatible on a global basis with GS-1 industry standards. A trade item is defined as any item (product or service) upon which there is a need to retrieve pre-defined information about the product or service and may be priced, ordered, or invoiced at any point throughout the supply chain. Within the context of this policy, this definition covers **ALL** 3M products sold globally. Shipping containers for all 3M products shall contain a barcode symbol which represents the product's GTIN and it **MUST** be represented in both a machine (barcode symbol) and human readable (data below the barcode symbol) format. This section will cover general requirements regarding barcode symbology types and related requirements surrounding the proper implementation of barcodes on 3M shipper labels.

Note: Refer to "Technical Appendix B: Barcodes" for more detailed information surrounding business rules and other related requirements associated with the proper implementation of barcode data.

Symbology Types

The required symbology type for 3M branded shipping container packaging is the GS1 1D barcode. Outlined below are the symbology types available for use on a 3M shipper label. The EAN-13/UPC-A symbology is listed only to account for scenarios where deviations from the use of a GS1 symbology may be warranted.

Symbology Type	Definition
GS1-128	(formerly known as UCC/EAN-128) The GS1-128 symbology is used in applications when encoding secondary information in conjunction with a product Global Trade Identification Number (GTIN). Examples of secondary information include: lot/serial number identification, expiration date, and manufacture date. **Notes:** • GS1-128 can be used in conjunction with ITF-14 or EAN-13/UPC-A symbologies where ITF or EAN-13/UPC-A symbologies are used to encode the GTIN and the GS1-128 symbology is used to encode secondary information. • For non-HCBG (Health Care Business Group) products, the GS1-128 symbology is **NOT** to be used in situations where the shipping container is also defined as the consumer unit. This is allowed for HCBG products.
ITF-14	The ITF-14 (Interleaved Two of Five) symbology is used in applications when encoding a product Global Trade Identification Number (GTIN). **Notes:** • The ITF-14 symbology is **NOT** to be used in situations where the shipping container is also defined as the consumer unit.
EAN-13/UPC-A	The EAN-13/UPC-A symbologies are used in applications when encoding a product Global Trade Identification Number (GTIN). **Notes:** • The EAN-13 and UPC-A symbologies are **REQUIRED** in applications where the shipping container is also defined as the consumer unit. An exception is when an HCBG product is involved. • The UPC-A barcode symbology is used for US retail applications, while the EAN-13 barcode symbology is to be used for INTERNATIONAL retail applications.

Barcode Symbol Location

Global Supply Chain requirements state that barcode symbol on a 3M shipping container **MUST** comply with the following requirements:

- Appear on at least one vertical panel (preferably on the width (front) panel), or on the top panel of "shallow" (< or = to 8,89 cm (3.5 inches) shipping containers where placement of the barcode symbol cannot meet vertical placement requirements (see illustrations 1 and 3A, 3B, and 3C below for referencing purposes). **Note**: Certain applications may require that barcode symbols appear on two adjacent panels (reference Illustrations 2A and 2B below for examples of "common" adjacent panel barcoding).
- Be oriented in such a way that the "bars" of the barcode symbol are in a "picket fence" orientation when the shipping container is positioned on its natural bottom (see illustration 4 for referencing purposes).
- Be positioned (regardless of print process utilized for the shipper label) in such a way that the bottom of the "bars" are located 38 mm (1.50 inches) from the natural bottom of the shipping container on which it appears and no closer than 19 mm (0.75 inches) from any vertical edges (see illustration 5 below for referencing purposes).
- If utilizing direct print or pre-printed labels, and you need to include variable (secondary information), it is acceptable to implement your variable (secondary information) data through the use of a spot label that is generated via an "On-Demand" application (see illustration 6 for referencing purposes). **Note:** Implementing this option will require that the spot label be designed in such a way that 1) manufacturing data zone information be located in the markings data zone, 2) marking data zone information be located in the manufacturing data zone, and 3) barcode data (if applicable), be located in the available area of the barcode data zone.
- See Technical Appendix B: Barcodes for barcode layout options.

Note: GS1 standards for barcode symbol placement on shipping containers is targeted as 32 mm (1.25 inches) from bottom, but due to specific content requirements, this measurement has been standardized as 38 mm (1.50 inches).

<table>
<tr>
<td> 
Illustration 1
Placement of shipper label on one vertical panel (end panel) of shipping container.</td>
<td> 
Illustration 2A
Placement of two individual shipper labels on adjacent panels (end and length panels) of shipping container.</td>
<td> 
Illustration 2B
Placement of a corner-wrap shipper label on adjacent panels (end and length panels) of shipping container.</td>
</tr>
<tr>
<td> 
Illustration 3A
Placement of shipper label on top panel of shipping container.</td>
<td> 
Illustration 3B
Placement of shipper label on adjacent panels (top and end panels) of shipping container where vertical placement cannot be met.</td>
<td> 
Illustration 3C
Placement of shipper label on adjacent panels (top and end panels) of shipping container.</td>
</tr>
</table>

		
Illustration 4 Orientation of barcode symbol in a "picket fence" orientation while shipping container rests on its natural bottom. A = picket fence barcode orientation B = Ladder style barcode orientation	**Illustration 5** Placement of shipper label on shipping container (spacing/location requirements). A = 19 mm (0.75 inches) B = 38 mm (1.50 inches)	**Illustration 6** Combination "hybrid" including both preprinted and "On-Demand" barcode information. GTIN can be encoded using either EAN-13, UPC-A, ITF, or GS1-128 barcode symbol and secondary information is encoded using GS1-128 symbol.

Variable Packed and Variant Configurable Product Barcodes

Shipper labels created for variable packed or variant configurable products will have the following characteristics:

- May or may not contain a GTIN barcode.
- Additional barcodes on the shipper label are acceptable if required for receiving by a 3M distribution center. Any additional barcode should be placed as close as practical to the corresponding human readable content, while adhering to the barcode requirements outlined above.

Section IX – Shipper Label Translations

Introduction

3M Company sells products all over the world, and as such, the requirement for multilingual content on our shipper labels becomes a necessity. When developing shipper labels for 3M products, it is important to understand where the product will be shipped and sold as well as local language requirements for these countries or regions. When multiple languages are required on a shipper label, it is a legal requirement in most cases that all text that can be classified as a "word" must be translated (exceptions include: numbers, Brands, Trademarks, abbreviations, images, etc.) into each applicable language that will be present on the shipper label. Furthermore, all translated information should be set using the same type size, font style and proximity in order to assure equal prominence. As a general rule, it is recommended to minimize the usage of text and always try to use pictograms and graphics to communicate pieces of information regarding the 3M product that would otherwise be communicated through the use of text (refer to "Technical Appendix C: Shipper Label Pictograms" for more information regarding pictograms).

Language/Country Codes

Language Codes

The inclusion of language codes was designed to more easily identify different languages that are represented on shipper labels that contain multilingual content. The language codes listed in Technical Appendix H: Language and Country Codes have been adopted from the International Organization for Standardization (ISO) and are covered under ISO standard 639-1 which defines codes for different languages. Each language code consists of a lower-case 2-alpha code that is used to represent a specific language.

Country Codes

The inclusion of country codes was designed to more easily identify different countries that are represented on shipper labels that contain multilingual content. The country codes listed in Technical Appendix H: Language and Country Codes have been adopted from the International Organization for Standardization (ISO) and are covered under ISO standard 3166-1 which defines codes for the names of countries, dependent territories, and special areas of geographical interest, and their principal subdivisions (e.g., provinces or states). Each country code consists of an upper-case 2-alpha code that is used to represent a specific country.

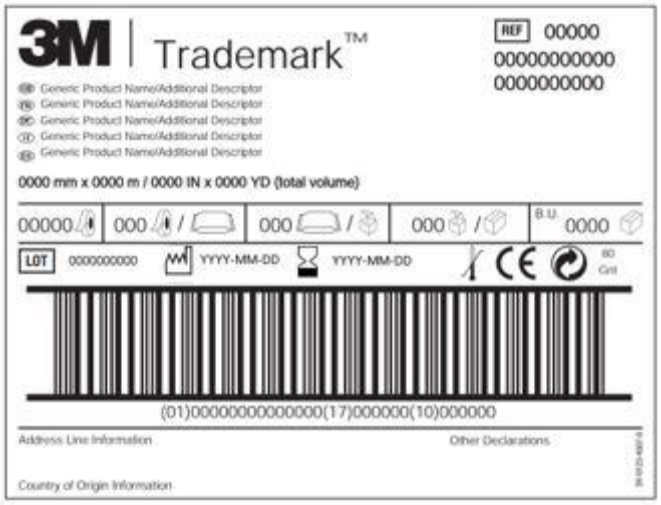
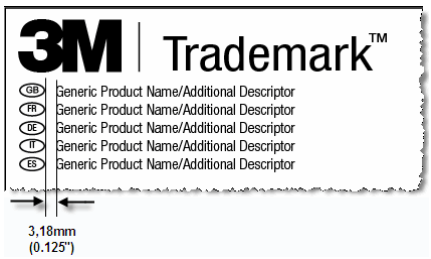
Notes:

- Although multilingual content may exist in various areas of the shipper label, **DO NOT** utilize language or country codes in any other areas on the shipper label other than in the Generic Product Name/Additional Descriptor Data Zone.
- Utilization of language or country codes on the 3M shipper label is OPTIONAL.
- The language code list states the language name (official short names in English) in alphabetical order as given in ISO 639-1 and the corresponding ISO 639-1 alpha-2 code. This list is updated whenever a change to the official code list in ISO 639-1 is affected by the ISO 639/MA (Management Agency).
- The country code list states the country names (official short names in English) in alphabetical order as given in ISO 3166-1 and the corresponding ISO 3166-1 alpha-2 code. This list is updated whenever a change to the official code list in ISO 3166-1 is affected by the ISO 3166/MA (Management Agency).
- Ensure each country code incorporates an ellipse that encapsulates the alpha-2 code (see visual examples below for additional details).

Visual Reference:

Country Code	Country Description
DE	Germany
ES	Spain
JP	Japan

Visual Reference:

Language Codes Implemented on Shipper Label	Expanded View – Language Codes Integrated with Generic Product Name
	

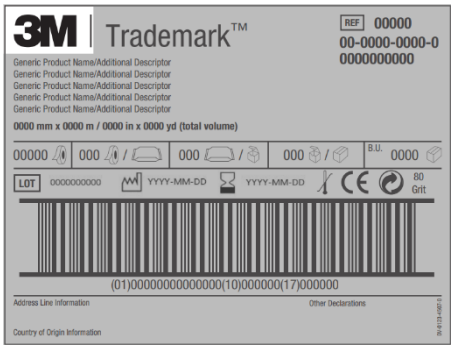
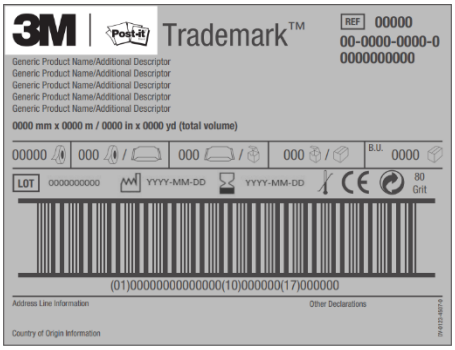
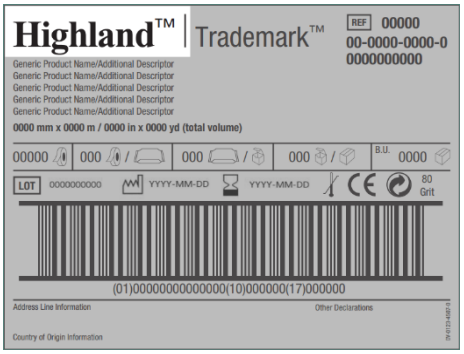
See “Technical Appendix H: Language and Country Codes” for a listing of the language and country codes.

Technical Appendix A: Shipper Label Data Elements

Brand Data Zone

Definition:

The **Brand Data Zone** on the 3M shipper label is used to establish an identity that enables quick visual recognition of the 3M product.

		
3M brand with **NO** 3M strategic brand.	3M brand with 3M strategic brand and Trademark information.	3M unaffiliated brands with Trademark information.

Business Rules:

- 3M brand information (including 3M strategic or 3M unaffiliated brands) **MUST** be located in the brand zone of the shipper label template (see visuals provided above for location detail).
- Use only approved 3M brands on 3M shipper labels.
- 3M brands fall into one of three primary categories: 1) 3M brand 2) 3M strategic brands or 3) 3M unaffiliated brands.[1] (reference “Visual References”, section “3M Brand Types” for additional information).
- Default layout is to include 3M logo as the primary brand (see options 1-5 in “Visual References”, section “3M Brand Layout Options” for additional information).[2]
- Minimum size of a 3M or 3M unaffiliated brand set at 12mm (0.47 inches) in height, independent of label size.[3, 4, 5]
- Minimum size of a 3M strategic brand set at 12mm (0.47 inches) in height, independent of label size.[3,4, 5]
- When separating the 3M brand from a 3M strategic brand, include a vertical line (rule) that is equal to the height of the 3M brand and measures 1 mm or 2 pt. in thickness (reference “Visual References”, section “Spacing Requirements – 3M Brand” for specific spacing requirements around the vertical line (rule)).
- Do **NOT** utilize a 3M or 3M strategic brand in conjunction with a 3M unaffiliated brand (3M unaffiliated brands to have no association to 3M brands).
- When separating the 3M unaffiliated brand from Trademark information, include a vertical line (rule) that is equal to the height of the 3M brand and measures 1 mm or 2 pt. in thickness (reference “Visual References”, section “Spacing Requirements – 3M Brand” for specific spacing requirements around the vertical line (rule)).
- Do **NOT** translate 3M brand information.
- Surround all 3M brand information with adequate clear space to ensure maximum prominence and visual impact (reference “Visual References”, section “Spacing Requirements – 3M Brand” for additional information).

[1] Examples of 3M unaffiliated brands include, but may not be limited to Highland and Tartan.

[2] In the event that a 3M unaffiliated is required (e.g.: Highland, Tartan, other), the 3M unaffiliated brand will replace the 3M brand.
[3] Dimensions of a 3M, strategic, or unaffiliated brand may vary in scale.
[4] In the event that the minimum size requirement of 12 mm (0.47 inches) cannot be met, and the needed size reduction negatively impacts legibility, please contact Marketing Communications within the 3M business in order to review design/layout options. **Note:** Regardless of size reduction, if a 3M and 3M strategic brand are required, ensure that both remain equal in height to maintain equal prominence.
[5] In the event that available space permits, it is acceptable to increase the size of the Brand data as long as **ALL** the content elements contained in the Product Identification Display Panel are proportionally maintained based on the predefined minimums. **Note:** Use of visual scaling vs. mathematic scaling is acceptable.

Exceptions:

- In the event that 3M is classified as the distributor of the product, and a 3M brand will not be utilized, the shipper label will be classified as a "Private-Label" and will not be governed by the requirements set forth in this policy.
- In the event that space constraints do **NOT** allow the use of the 3M brand and a strategic or unaffiliated brand as separate graphics/images, it is acceptable to concatenate both the 3M brand and strategic or unaffiliated brand into one graphic/image (see option 5 in "Visual References", section "3M Brand Layout Options" for example).

References/Resources:

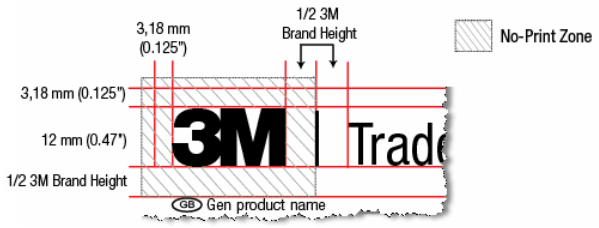
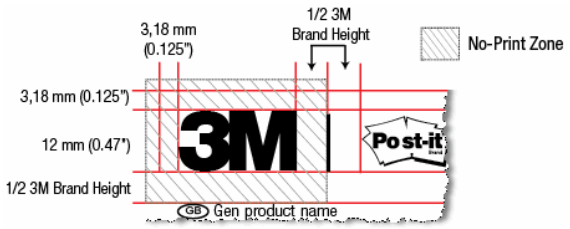
- Contact brandcentral@mmm.com for additional information pertaining to branding requirements.

Visual References:

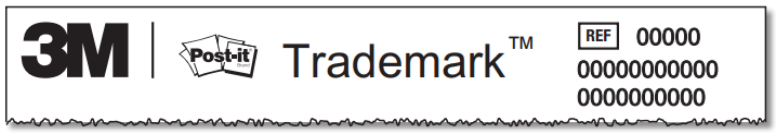
3M Brand Types

Brands	Visuals		
3M Brand	3M		
3M Iconic and Retail Sub-brands (examples)	Post-it	Scotch	Nexcare
	Filtrete™	Command™ Brand	Scotch-Brite
	Scotchprint Graphics	Vikuiti™ Display Enhancement	Scotchgard Protector
3M Unaffiliated Brands (examples)	Highland™	Tartan™	

Spacing Requirements – 3M Brand Information

Requirements	3M Brand Spacing Visual
• Space equal to ½ the height of the 3M or 3M unaffiliated brand must exist between 3M brand and vertical line (rule). • Space equal to ½ the height of the 3M brand must exist between the vertical line (rule) and any 3M strategic or Trademark information. • Space equal to ½ the height of the 3M unaffiliated brand must exist between the vertical line (rule) and any Trademark information. • Space equal to ½ the height of the 3M or 3M unaffiliated brand must exist between the 3M and 3M unaffiliated brand and Generic Product Name/additional descriptor information. • Space equal to 3,18 mm (0.125 inches) between 3M or 3M unaffiliated brand and left margin of the artwork area. • Space equal to 3,18 mm (0.125 inches) between 3M or 3M unaffiliated brand and top margin of the artwork area. **Notes:** • Even though spacing requirements between 3M or 3M unaffiliated brand and left/top margins is less than ½ the height of the 3M brand, no other printed information must exist around the 3M or 3M unaffiliated brand. • In the event that spacing requirements surrounding the 3M or 3M unaffiliated brand cannot be met, and the reduction in spacing negatively impacts legibility, please contact Marketing Communications within the 3M business to review design/layout options.	 

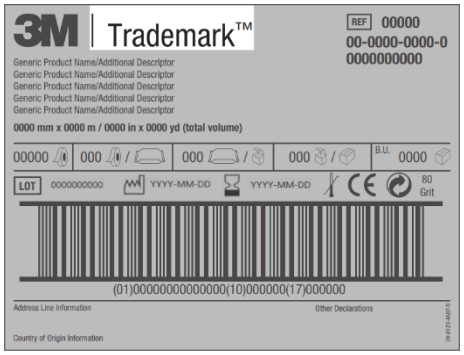
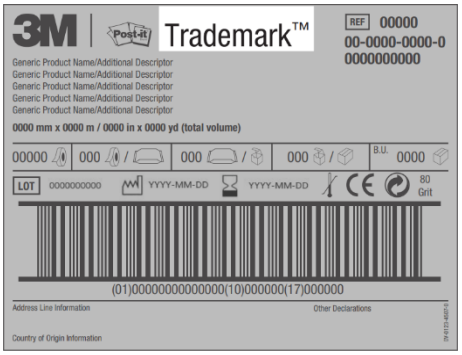
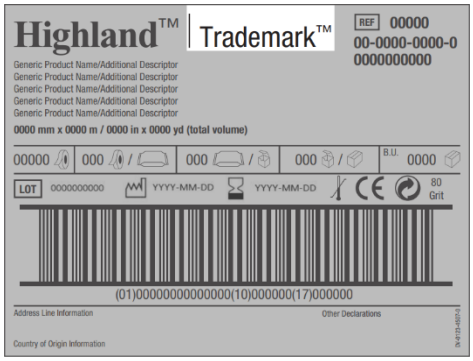
3M Brand Layout Options

Option #	Layout Description	Layout Visuals
1	3M brand with **NO** 3M strategic brand or Trademark information.	
2	3M brand combined with Trademark and **NO** 3M strategic brand information.	
3	3M brand combined with 3M strategic brand and **NO** Trademark information.	
4	3M brand combined with both 3M strategic brand and Trademark information.	
5	3M unaffiliated brand combined with 3M strategic brand Trademark information.	

Trademark Data Zone

Definition:

The **Trademark Data Zone** on the 3M shipper label is used to enhance the brand by further identifying and distinguishing the source of the 3M product (Trademarks can be defined as a word, combination of words, symbol, or other device).

		
Trademark usage with 3M brand with **NO** 3M strategic brand	Trademark usage with 3M and 3M strategic brand	Trademark usage with 3M unaffiliated brand

Business Rules:

- Trademark information **MUST** always be located in the Trademark zone of the shipper label template (see visual provided above for location detail).[1]
- Trademarks will fall into one of two primary categories: 1) Trademarks and 2) Registered Trademarks. The symbol ™ indicates that a mark is considered a Trademark by its owner and must **ALWAYS** be placed at the end of the Trademark. The symbol ® means that a certificate of registration is held for the specific category and class of the product in the country where it is being sold (the symbol ® must always be placed at the end of the Trademark).[2, 3]
- Trademark symbols should be included for all 3M marks as set forth in the 3M Identity Guidelines. Please consult with your legal counsel if any products will be shipped into Chile, Ecuador, or Venezuela.
- Use only 3M approved Trademarks and registered Trademarks.
- Minimum size of Trademark information set at 2/3 height of the 3M or 3M unaffiliated brand or 8 mm (0.32 inches), independent of label size.[4, 5] **Note:** In the event that Trademark data is represented as typeset copy, utilize a point size that would match or come close to matching the 2/3 height requirement.
- Several options for locating Trademark information are acceptable (reference "Visual References" below for additional information regarding Trademark layout options).
- Do **NOT** translate Trademark information.
- Default distance between Trademark and vertical line (rule) or 3M strategic brand is 1/3 of 3M brand height.
- Minimum distance between Trademark and Product Identifier data is ½ of 3M brand height.

[1] Not all 3M products are Trademarked. In the event that a Trademark is not applicable, this area of the shipper label will remain blank.

[2] Operating System: Microsoft Windows - American keyboard layout utilize alt+0153 for ™ and alt+0174 for ®.

[3] Operating System: Macintosh - opt+2 for ™ and opt+r for ®, and their Unicode encodings are 2122 in hexadecimal/8482 in decimal for ™ and 00AE in hexadecimal/174 in decimal for ®.

[4] In the event that Trademark information cannot equal the 2/3 height of the 3M or 3M unaffiliated brand, it is acceptable to reduce the size of the Trademark in size/scale so that it can fit in the area of the shipper label that has been allocated for this information and not interfere with any other printed information surrounding the Trademark. If the needed size reduction of Trademark information negatively impacts legibility, please contact Marketing Communications within the 3M business to review design/layout options.

[5] In the event that available space permits, it is acceptable to increase the size of the Trademark data as long as **ALL** the content elements contained in the Product Identification Display Panel are proportionally maintained based on the predefined minimums. **Note:** Use of visual scaling vs. mathematic scaling is acceptable.

Exceptions:

- In the event that the Trademark is too long to fit in the area allocated for Trademark information, it is acceptable to reduce the size of the Trademark.
- In the event that multiple Trademarks are applicable, it is acceptable to reduce the size of the Trademark. Default is to place multiple Trademarks on one line. In the event that spacing does not allow, it is acceptable to stack multiple Trademarks.

References/Resources:

- Contract brandcentral@mmm.com for additional information pertaining to Trademark requirements associated with 3M shipper labels.
- The 3M Office of Intellectual Property Counsel can help you with the process of developing or registering a Trademark and how to establish Trademark rights in the U.S. and other countries.

Visual References:

Trademark Layout Options

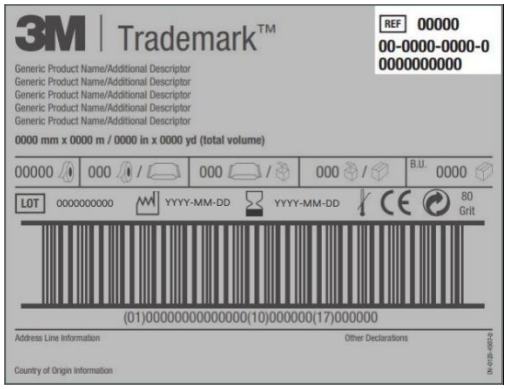
Layout Options	Trademark Layout Examples
3M brand combined with one Trademark.	
3M and 3M strategic brand combined with one Trademark.	
3M and 3M strategic brand combined with two Trademarks (single line with Trademarks slightly reduced in size to fit available area).	
3M brand combined with two Trademarks (stacked Trademarks to fit available area).	
3M brand combined with one Trademark located below the 3M brand. **Note:** This layout option to be used if space available to the right of the 3M brand is too small to fit Trademark information). **Notes:** • When utilizing this layout option, minimum height of Trademark data is set to 2/3 height, or 8 mm (0.32 inches), of 3M brand. • When utilizing this layout option, the vertical line between the 3M brand and Trademark information is **NOT** required. • Space equal to ½ the height of the 3M or 3M unaffiliated brand must exist between the Trademark and Generic Product Name/additional descriptor information.	
3M brand combined with 3M strategic brand and one Trademark located below the 3M brand. **Note:** This layout option to be used if space available to the right of the 3M brand is too small to fit Trademark information).	

Notes: • When utilizing this layout option, default height of Trademark information is set to 2/3 height, or 8 mm (0.32 inches), of 3M brand. • When utilizing this layout option, the vertical line between the 3M brand and 3M strategic brand is required. • Space equal to ½ the height of the 3M or 3M unaffiliated brand must exist between the Trademark and Generic Product Name/additional descriptor information.	

Product Identification Data Zone

Definition:

The **Product Identification Data Zone** is used to communicate multiple pieces of information. The first piece of information included in this zone is an **Identifier** that can be used either as a primary or alternate means to identify a 3M product and is composed of a pictogram and the product identifier itself. The second piece of information included in this zone is a legacy **3M Stock Number** (soon to be replaced by the new SAP material master number) and/or **3M Material Master Number** (SAP 10-digit product number) which is primarily used within the 3M Supply Chain.



Business Rules:

- Identifiers and 3M Stock Number information **MUST** always be located in the product identification zone (see visual provided above for location detail).
- Identifier(s) **MUST** always be placed above the 3M Stock Number and/or 3M Material Master Number.
- One, or multiple Identifiers may be applicable. If you need to include multiple Identifiers, place them either next to one another (if space allows), or stack them on top of one another.[1, 2]
- 3M Stock Number and/or 3M Material Master Number **MUST** always be located below any and all Identifiers.
- It is recommended that the implementation of an Identifier be used only when it is present in order processing systems and is used as a primary method of identifying a 3M product.
- In the event that an Identifier will **NOT** be used, leave the area above the 3M Stock Number and/or 3M Material Master Number blank.
- Identifiers fall into one of three primary categories: 1) Reference Number - REF, 2) Catalog Number - CAT, and/or 3) Automotive Aftermarket Number - AAN.[3]
- Each Identifier that is included needs to be prefaced with an identification symbol (reference "Visual References" below for 3M approved Identifier symbols).
- Do **NOT** translate Identifier or 3M Stock Number and/or 3M Material Master Number information.
- All 3M shipper labels **MUST** include, at minimum, 3M Stock Number and/or 3M Material Master Number information.
- Minimum font size for Identifier should be 14 pt. and should be maintained regardless of label size.[4, 5]
- Minimum font size for 3M Stock Number and/or 3M Material Master Number should be 14 pt. and should be maintained regardless of label size.[4, 5]

1 If space constraints exist when trying to incorporate multiple Identifiers, it is acceptable to reduce the size of the Identifier information (including Identifier symbol and the Identifier itself).

2 If an Identifier symbol has not been utilized in the past, default to using the "REF" identifier symbol.

3 If "other" Identifiers (e.g.: NSN – National Stock Numbers, NDC – National Drug Code, etc.) are used as either primary, or alternate means to identify a 3M product, please place this information in the "Markings Data Zone" (reference "Marking Data Zone" within "Technical Appendix A: Shipper Label Data Elements" for detailed information).

4 If spacing constraints exist, it is acceptable to reduce the font size of the Identifier, 3M Stock Number and/or 3M Material Master Number below 14 pt. **Note:** Minimum font size requirement for shipper label artwork that will be direct print is 10 pt.

5 If available space permits, it is acceptable to increase the size of the Product Identifier data as long as **ALL** the content elements contained in the Product Identification Display Panel are proportionally maintained based on the predefined minimums. **Note:** Use of visual scaling vs. mathematic scaling is acceptable.

Exceptions:

- If Identifier symbols, other than those outlined in this policy, are commonly used by a 3M business, it is acceptable to continue using them.

References/Resources:

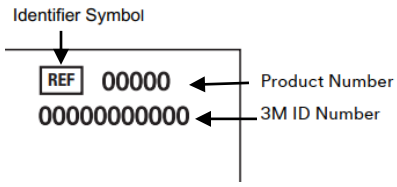
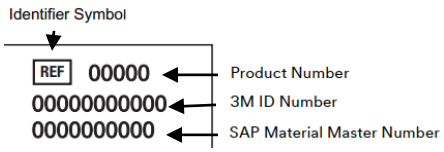
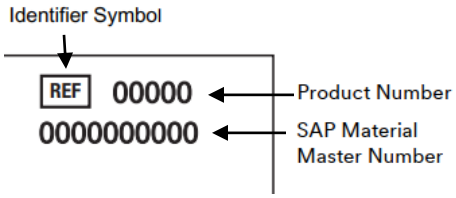
- To obtain support surrounding the implementation of product identifier information, contact Marketing (Identifier) and Supply Chain (3M Stock Number and/or 3M Material Master Number).

Visual References:

3M Identifier Symbols

Identifier Types	Identifier Symbols
Reference/Part Number	REF
Catalog Number	CAT
Automotive Aftermarket Number	AAN

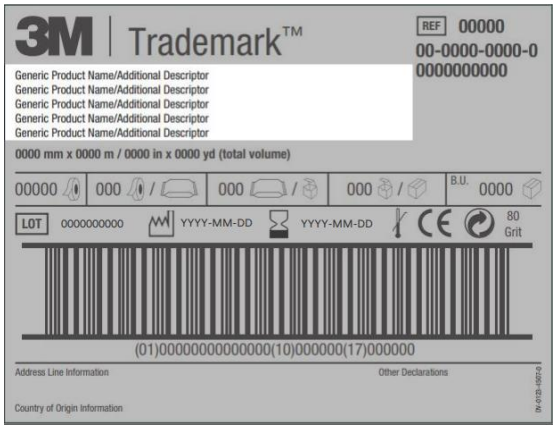
3M Stock Number/3M Material Master Number Layout Options

Acceptable Layout Options – Integration of 3M Stock Number and 3M Material Master Number		
 3M Stock Number **ONLY**	 3M Stock Number **AND** 3M Material Master Number	 3M Material Master Number **ONLY**

Generic Product Name/Additional Descriptor Data Zone

Definition:

The **Generic Product Name/Additional Descriptor Data Zone** is used to communicate general descriptive information to identify the product. This descriptive information can be broken into two types: 1) Generic Product Name and 2) Additional Descriptor.



Business Rules:

- Generic Product Name and additional descriptive information **MUST** always be located in the Generic Product Name/Additional Descriptor data zone (see visual provided above for location detail).
- Generic Product Name information is used to communicate what the 3M product is in a textual format.
- All shipper labels **MUST** include Generic Product Name information.[1]
- Generic Product Name should consist of an adjective and singular noun.
- Do **NOT** include any product pictograms in the Generic Product Name/additional descriptor data zone.
- Do **NOT** include product numbers as part of the Generic Product Name or additional descriptor information, even for 3M products that have historically been known by product numbers. Product numbers and other related references are to be placed in the Product Identification Data Zone.
- All words contained in the Generic Product Name should be capitalized in English (and most other languages).[2]
- If the shipper label is classified as a multi-lingual label, any and all words contained as part of the Generic Product Name as well as any additional descriptor information **MUST** be translated into each language.
- Multiple layouts exist to organize Generic Product Name and additional descriptor information (reference "Visual References" below for acceptable layout options).
- Size of the language code "carplates", if used, should be equal the size of typeset copy used to define both Generic Product Name/Additional Descriptor information.
- Minimum font size for Generic Product Name/Additional Descriptor data should be 10 pt. and should be maintained regardless of label size.[3, 4]

1 Defining an Additional Descriptor in conjunction with a Generic Product Name is optional.

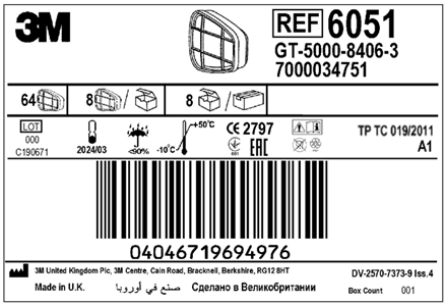
2 Known exceptions: French.

3 In the event that spacing constraints exist, it is acceptable to do the following: 1) reduce the font size of the Generic Product Name/Additional Descriptor data below 10 pt. **Note**: This is **NOT** an option for shipper label artwork that will be direct print), and/or 2) adjust the spacing between multiple rows of Generic Product Name/Additional Descriptor data found on the shipper label.

4 In the event that available space permits, it is acceptable to increase the size of the Generic Product Name/Additional Descriptor data as long as **ALL** the content elements contained in the Product Identification Display Panel are proportionally maintained based on the predefined minimums. **Note:** Use of visual scaling vs. mathematic scaling is acceptable.

Exceptions:

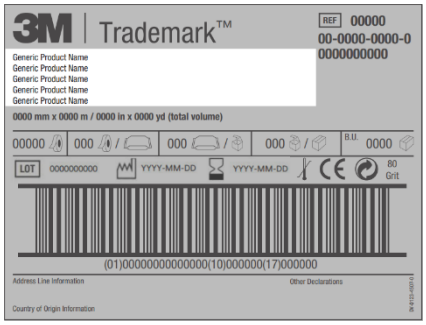
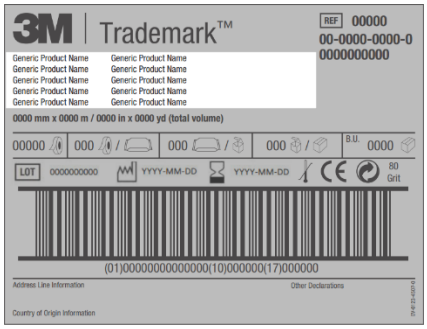
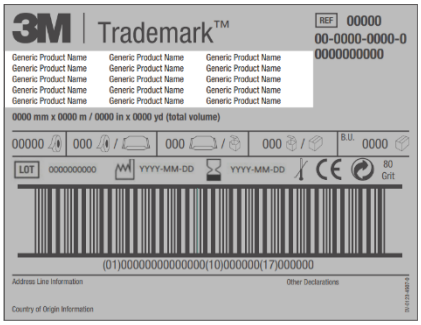
- For Personal Safety Division (PSD) in EMEA only, a product icon can be used in place of translations in the Generic Product Name/Additional Descriptor Data Zone. See an example below:

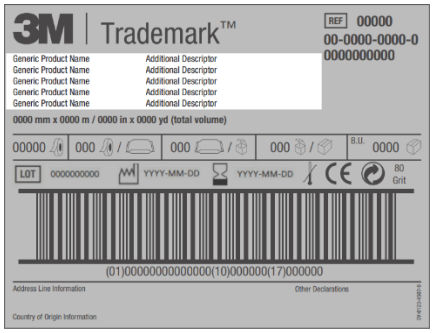
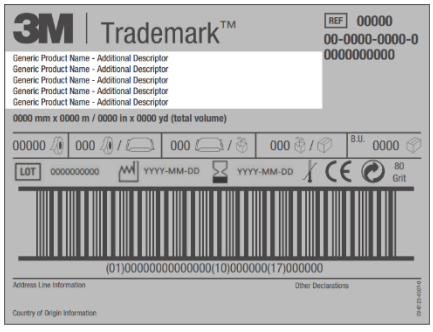
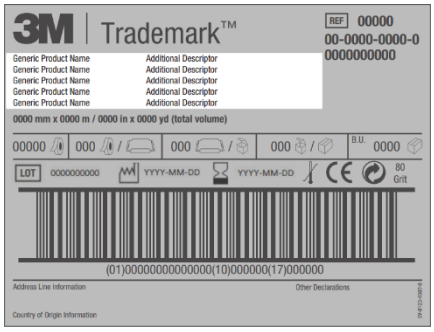


References/Resources:

- To obtain support surrounding the implementation of Generic Product name/Additional Descriptor information, contact Marketing.

Visual References:

Acceptable Layout Options – Column Layouts		
		
One-column format used to define Generic Product Name - (no additional descriptor information).	Two-column format used to define Generic Product Name - (no additional descriptor information).	Three-column format used to define Generic Product Name - (no additional descriptor information).

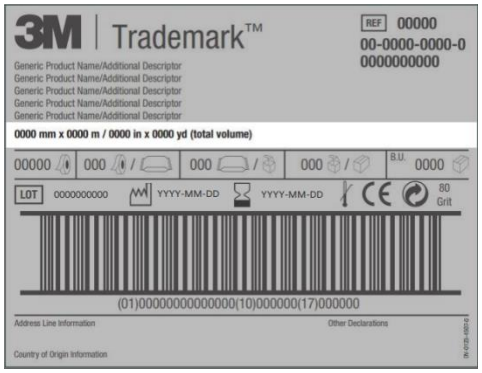
Acceptable Layout Options – Integration of Additional Descriptor with Generic Product Name		
		
Generic Product Name and Additional Descriptor concatenated with no special	Generic Product Name and Additional Descriptor concatenated with special	Generic Product Name and Additional Descriptor separated by an “extended

formatting.	formatting.	space" to visually create separation between the two pieces of data. **Note:** Measurement for "extended space" not specified – user discretion.

Net Contents/Weights & Measure Data Zone

Definition:

The **Net Content/Weights & Measure Data Zone** is used to communicate net content and/or weights and measurement information related to the product.



Business Rules:

- Net contents/weights & measure information **MUST** always be located in the net contents/weights & measure data zone (see visual provided above for location detail).Net contents/weights & measure data to be expressed in both metric and imperial formats.[1, 2]
- Minimum font size for net contents/weights & measure information should be **NO LESS** than the size of the font used to typeset the Generic Product Name and additional descriptor information (it is acceptable to increase the size of the net contents/weights & measure data if needed).
- Weights and measure information should be separated from other printed information above or below by a space equal to the font size used to typeset the weights and measure information.
- Weights and measure information should be separated from other printed information to both the left or right by a space equal to twice the width of the letter "N" of the font style used to define weights and measure information.
- When the shipper label also acts as the primary label, defining the "total volume" of product contained in the shipping container shall be required and **MUST** be enclosed in parenthesis. In addition, "Each" shall be added after the weights and measure data and before "total volume" (reference "Visual References" below for examples).

[1] Default sequence of net content/weights & measure information is as follows: metric first, followed by imperial equivalents (it is acceptable to reverse sequencing of this information when there is a specific business case to do so).
[2] If product is sold strictly **INTERNATIONAL,** it is not necessary to include imperial equivalents (metric would then default to left justified).

Exceptions:

- Definition of weights & measurement information may **NOT** be required on the shipper label based on the product definition.

References/Resources:

- To obtain support surrounding the implementation of net content/weights & measure information, contact Marketing/Marketing Communications.

Visual References:

Examples of Defining Net Contents/Weights & Measure Data (Imperial)

DO's	DONT'S	Comment
1.5 YD	1,5 YD	**DO** use a decimal period for imperial (English) dimensions
2.5 IN	2.5IN	**DO** use a space for imperial dimensions between the numeric and text portions of the dimension.
1.5 IN	1.5 IN.	**DO NOT** use any punctuation at the end of the imperial unit-of-measure (not a legal requirement).
2 YD	2 YDS	**DO NOT** pluralize unit of measure symbols (not a legal requirement).
1 IN x 4 IN	1 x 4 IN	**DO** follow each numeric value with a unit-of-measure symbol.
10 U.S. FL OZ	10 FL OZ	**DO** precede any liquid volume (English) unit-of-measure symbol with "U.S."
1 IN/PO	1 IN	**DO** translate the imperial unit-of-measure into local languages where applicable.

Additional Information:

- If space is an issue with respect to defining imperial dimensions, using all upper-case letters will allow you to use a smaller font size. Example: 1 ROLL ¾ IN X 1296 IN (19 mm x 32,9 m)
- **DO NOT** translate the imperial unit-of-measure in Spanish.
- **DO NOT** use imperial units-of-measure in International only (non-English).

Examples of Defining Net Contents/Weights & Measure Data (Metric)

DO's	DONT'S	Comments
2,5 cm	2,5cm	**DO** use a space between the numeric and unit-of-measure. **Exceptions**: 1) All International only packaging artwork. 2) Omit space between numeric and unit-of-measure if available space on the shipper label does not permit/allow.
2,5 cm	2.5 cm	**DO** use a comma for metric dimensions. **Exception**: If language is Chinese or English (for Great Britain) then use a period.
2,5 cm	2.5 cm.	**DO NOT** use punctuation at the end of the metric unit-of-measure.
2,5 cm x 10 cm	2,5 x 10 cm	**DO** follow each numeric value with a unit-of-measure symbol.
1,5 kg	1 kg 500g	**DO NOT** mix units when stating metric dimensions.
mL, (ml)	ML	**DO** use lower case letters for metric unit-of-measure symbols except for L (for liter) is allowed, however "L" is preferred to avoid confusing it with the digit for "1" or the letter "i" (e.g.: 20 mL, 5 L).
mm	Mm, mm., MM	**DO** use lower case letters for metric unit-of-measure (e.g.: 20 mm).

Additional Information:

- **DO NOT** translate the metric unit-of-measure into either French or Spanish.
- **DO** use imperial and metric units-of-measure if product is sold in the US.
- **DO** use parentheses around the metric measurements on English only packaging if imperial and metric measurements are on the same line.
- **DO NOT** use parentheses around the metric measurements if other than English only packaging.

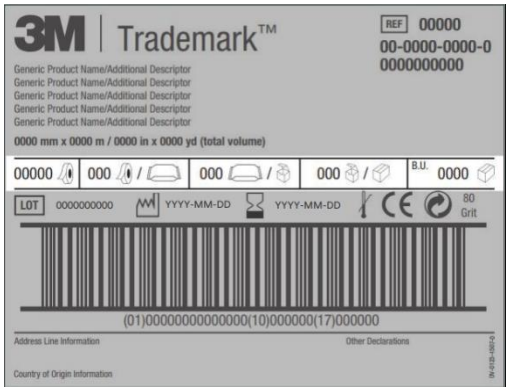
Examples of Defining "Total Volume"

Example Description	Examples
An individual tape roll measures 4 inches x 30 yards. If you have a total of five individual rolls of tape in the shipping container, and that shipping container also acts as the primary, the "total volume" would be defined as follows:	4 IN x 30 YD EA. (150 YD)
An individual can of liquid contains 10 fluid ounces. If you have a total of five individual cans in the shipper, and that shipping container also acts as the primary, the "total volume" would be defined as follows:	10 U.S. FL OZ EA. (50 U.S. FL OZ)

Pack-Out Data Zone

Definition:

The **Pack-Out Data Zone** is used to communicate three primary pieces of information. Left to right, these are: 1) quantity of individual products contained in the shipping container, 2) pack out or internal packaging that exists within the shipping container, and 3) the billing unit, or sales unit for the product.



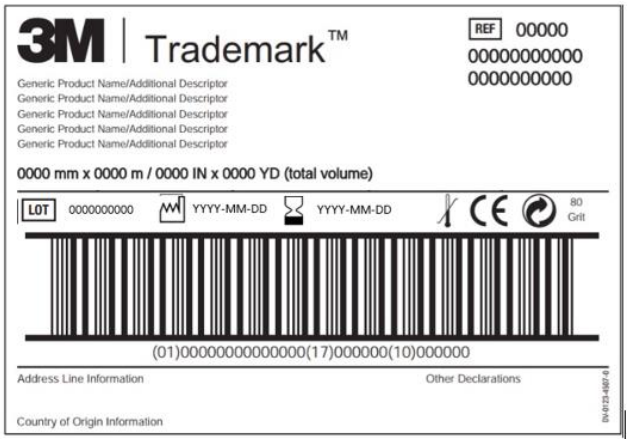
Business Rules:

- Aside from the exceptions noted below, pack-out data must be included on the shipper label and **must** always be located in the pack-out zone (see visual provided above for location detail).
- Quantity of individual products, and its associated unit-of-measure, should always be left justified on the pack-out line and is intended to represent the total quantity of individual products contained within the shipping container (reference "Visual References" below for additional detail).
- The billing unit, or sales unit, and its associated unit-of-measure, should always be right justified on the pack-out line and is intended to represent the total quantity of billing or sales units that are contained within the shipping container. **Note**: In some cases, the quantity of individual products contained in the shipping container and the billing/sales unit will be the same (reference "Visual References" below for additional detail).[1]
- The center of the pack-out line is reserved for defining the various level of internal packaging that may exist within a given shipping container. This includes primary, intermediate, and any other levels of internal packaging. **Note**: In some cases, no internal packaging may exist (bulk packages). In these situations, this area of the 3M shipper label should be left blank (reference "Visual References" below for additional information detail).
- Even though the use of typeset copy is allowed in the pack-out data zone, pictograms (aka: line art) should be used wherever possible in order to eliminate the need for translations or excessive amounts of space on the shipper label when using words (refer to "Technical Appendix C: Shipper Label Pictograms" for additional pictogram detail).
- Use only pictograms that have been approved for use by the business.
- Design guidelines for all pictograms would be in compliance with the requirements set forth in Technical Appendix F: Line Art Guidelines (refer to "Technical Appendix F: Line Art Guidelines" located in the back of this policy for detailed information surrounding business rules and other related requirements associated with both the design and implementation of line art on shipper labels).
- Use a "forward slash" between numeric values and associated unit-of-measure data for all pack out or internal packaging definitions. **Note:** "forward slashes" are **NOT** to be used for defining quantity of individual products contained in the shipping container or for defining billing unit/sales unit information for the product.
- The default font size for pack-out line data covering both 1) quantity of individual products contained in the shipping container and 2) billing unit, or sales unit for the product, should be 12 pt. - bold and should be maintained regardless of label size. **Note**: Associated pictograms should be scaled to 8 mm (0.32 inches) in height in order to maintain equal prominence to the pack-out line data.
- The default font size for pack-out line data covering pack-out, or internal packaging that exists within the shipping container should be 10 pt. - bold and should be maintained regardless of label size. **Note**: Associated pictograms should be scaled to 8 mm (0.32 inches) in height in order to maintain equal prominence to the pack-out line data.

[1] Billing Unit information is required when the products are either 1) being sold in the US, 2) imported into the US from an International source of supply, and/or 3) coming from the US.

Exceptions:

- A pack-out data zone is not required on shipper labels for industrial chemicals which are used for business-to-business transport and not shipped to final end customers. See example below.
- A pack-out data zone is not required on shipper labels that do not have a pack level below the shipper or pallet level (6S or 6P).

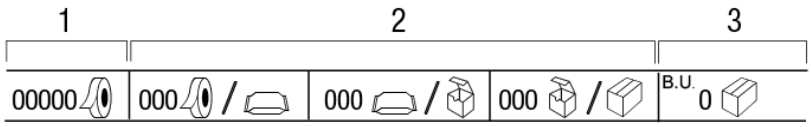


References/Resources:

- To obtain support surrounding the implementation of packout line information, contact Marketing, Marketing Communications, and/or 3M Packaging Solutions.

Visual References:

Location Requirements for Pack-Out Line Data on 3M Shipper Labels

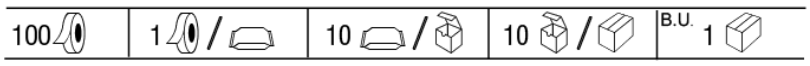
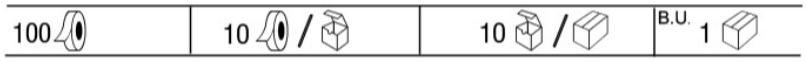
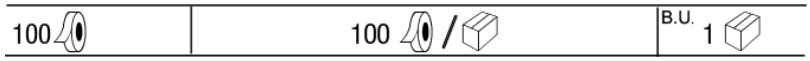
Description	Pack-Out Line
(1) Quantity of individual products contained in the shipping container.	
(2) Pack-out or internal packaging that exists within the shipping container.	
(3) Billing unit, or sales unit for the product.	

Example Pack-Out Line with Sample Data

Example where “Billing Unit” and “Quantity of Individual Products Contained in Shipping Container” vary.

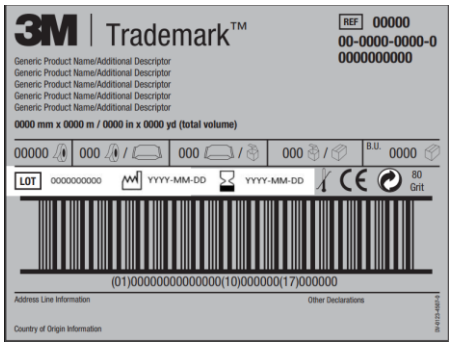
Example where “Billing Unit” and “Quantity of Individual Products Contained in Shipping Container” are the same.

Layout Options for Pack-Out Line Data on 3M Shipper Labels

Description	Pack-Out Line
Primary, Intermediate, and Shipper Level Packaging **ALL** present	
Primary and Shipper Level Packaging present (no intermediate packaging applicable)	
Bulk Pack (no primary or intermediate packaging applicable)	

Manufacturing Data Zone

Definition: The **Manufacturing Data Zone** is used to communicate information of a manufacturing nature. Examples of manufacturing data include, but may not be limited to: manufacture date, expiration date, lot/batch number, serial number, etc.



Business Rules:

- All manufacturing data **MUST** be located in the manufacturing data zone (see visual provided above for location detail).
- Definition of manufacturing data is optional (consult manufacturing site or regulatory department to get proper direction regarding the implementation of "manufacturing data").
- Each piece of manufacturing data needs to be prefaced with an identification symbol (reference "Visual References" below for 3M approved manufacturing symbols).[1]
- Required sequence of manufacturing data is as follows: 1) Lot/Batch Number/Serial Number Icon 2) Lot/Batch Number/Serial Number 3) Manufacture Date Icon 4) Manufacture Date 5) Expiration Date Icon 6) Expiration Date.
- Products/materials that are batch managed or default batch managed require a Lot/Batch Number on the shipper label. The Lot/Batch number must conform to the following standards:
    - Must be 10 characters or less.
    - Must be limited to alphanumeric characters – cannot contain spaces, slashes, dashes, etc.
    - Must not start with a zero (0), if entirely numeric.
    - Must be consistent with the system-of-record Batch ID.
    - No other references should be printed in the Lot/Batch field.
- Additional manufacturing information (e.g.: "best when used by" date) can be applied in this data zone. **Note:** If you want to encode "additional" manufacturing data using the GS1-128 barcode symbology, you **MUST** only use predefined application identifiers as outlined in GS1 standards.
- Because manufacturing data is classified as "variable data", implementation of this content on the shipper label must be through the use of an "on-demand" system.
- The implementation of manufacturing data should be approved by both the business and respective manufacturing location(s).
- Design guidelines for all manufacturing data line art would be in compliance with the requirements set forth in Technical Appendix F: Line Art Guidelines (refer to "Technical Appendix F: Line Art Guidelines" located in the back of this policy for detailed information surrounding business rules and other related requirements associated with both the design and implementation of line art on shipper labels).
- It is recommended that information contained in the manufacturing zone exactly match information encoded as barcode data (Reference: GS1-128 symbology).
- The use of Date format YYYY-MM-DD is recommended for both Expiration and Manufacturing Dates. However, it is recognised that date format requirements may vary based on region, customer, or regulatory requirement. The date format used on barcodes, printed data, and internal SAP data must match.
- The shipper label for a 3M Batch managed material must include a manufacturing date. Note: a 3M Batch Managed material is one that has a batch management requirement defined by the division.
- The shipper label for a Shelf-Life managed material must include an expiration date in addition to a manufacturing date. Note: a Shelf-Life managed material is one where the material has either a Total Shelf Life Days value greater than 0, or where the material is manufactured in-house and is subject to batch derivation rules to set the manufacturing date and the shelf-life expiration date.

[1] If multiple pieces of manufacturing data are required, default is to place data elements on one line. Where spacing does not allow, it is acceptable to stack multiple pieces.

Exceptions:
- If no manufacturing data will be present, it is acceptable to use this area for marking data.
- If no manufacturing data and markings present, it is acceptable to use this area for Generic Product Name/Additional Descriptor data and or net content/weights & measure data.
- It is acceptable to move manufacturing data to the spot label when utilizing option 6 (refer to section titled Barcode Layout Options found in Technical Appendix B: Barcodes).
- Additional manufacturing data which cannot fit in the prescribed Manufacturing Data Zone area of the label should be placed in the expansion zone.

References/Resources:
- Contact Manufacturing resources within the business.
- QM-ERP-393007 Document Title: Batch Management Policy

Visual References:

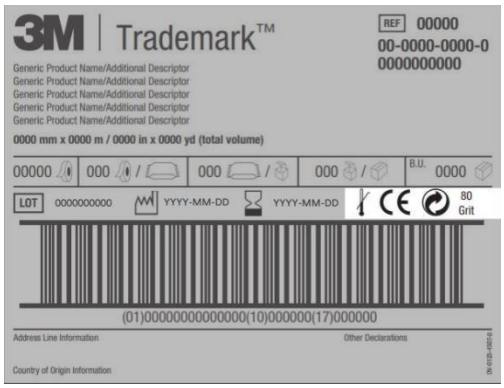
Manufacturing Symbols

Manufacturing Data Types	Manufacturing Symbols
Lot/Batch Number	
Serial Number	
Manufacture Date	
Expiration Date	

Marking Data Zone

Definition:

The **Markings Data Zone** is used to communicate information regarding the product and/or packaging that is complying to either a legal, environmental, and/or internal requirement. This information is commonly a graphic, but can take the form of typeset copy, or a combination of the two.



Business Rules:

- All marking data information **MUST** always be located in the marking data zone (see visual provided above for location detail).
- Typically marking data includes but may not be limited to: product specific markings, legally required markings, and/or environmental markings.
- It is acceptable to utilize the marking data zone to communicate additional information about the product that is **NOT** of a graphical nature (e.g.: 80 grit, size definitions (e.g.: S, M, L, XL), color definitions (e.g.: blue, black, green, yellow), other.
- It is recommended to keep markings organized (grouped) by category.
- It is recommended to only print markings on the shipper label that are necessary at the shipping container level.
- If typeset copy will be used for defining a marking, or used in conjunction with a graphic, ensure that the typeset copy is legible.
- Design guidelines for all marking data line art must be in compliance with the requirements set forth in Technical Appendix F: Line Art Guidelines (refer to “Technical Appendix F: Line Art Guidelines” located in the back of this policy for detailed information surrounding business rules and other related requirements associated with both the design and implementation of line art on shipper labels).

Exceptions:

- If no marking data is required, it is acceptable to use this area of the shipper label for manufacturing data.
- If no manufacturing data and markings are required, it is acceptable to use this area for Generic Product Name/Additional Descriptor data and or net content/weights & measure data.
- On direct print or pre-printed shipper labels, it is acceptable to move marking data to the data zone allocated for manufacturing data. See option 6 in the ‘Barcode Layout Options’ section of Technical Appendix B: Barcodes.

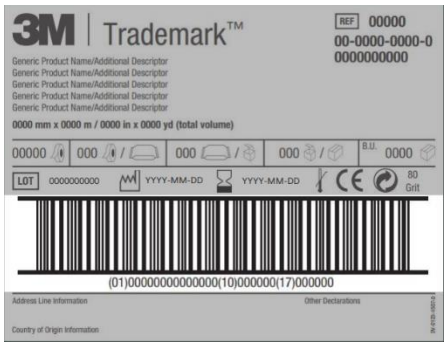
References/Resources:

- Contact Marketing/Marketing Communications/Laboratory/Regulatory within the business.

Barcode Data Zone

Definition:

The **Barcode Data Zone** is used to encode barcode data through the use of various barcode symbologies.



Business Rules:

- All barcode data **MUST** be located in the barcode data zone (see visual provided above for location detail).
- GTIN **MUST** always be encoded using a barcode symbology (refer to "Technical Appendix B: Barcodes" for additional detail).
- It is **NOT** allowed to assign two GTINs for the same pack level and print them with different symbologies.[1]
- It is strongly recommended to keep human readable information below the barcode symbol consistent with information included in the manufacturing data zone.
- Barcode height should be 32 mm (1.25 inches). If a shorter barcode is needed due to size constraints of the label stock, this may be reduced to as low as 19 mm (0.75 inches) with business approval.
- Ensure that horizontal bars are included both above and below the barcode symbology and run the entire width of area allocated for the shipper label artwork. **Note:** It is **NOT** required to implement horizontal bars on all barcode symbologies for all print processes, but the implementation of the horizontal bars has been designed as a standard in an effort to simplify the design of shipper labels and promote consistency between different print processes and barcode symbologies.

[1] In certain situations, it is acceptable to print the same GTIN with a second barcode symbology in the Expansion Zone of the shipper label, however, this barcode symbol **MUST** be printed in "ladder-style" format. Printing the same GTIN with two different symbologies outside the Expansion Zone is **NOT** allowed (refer to "Section V – Expansion Zone" for detailed information pertaining to the utilization of an Expansion Zone).

Exceptions:

- If the symbology type is a UPC-A or EAN-13, the human readable information must be located directly under the barcode symbology itself (DO NOT place the human readable information below the horizontal bar that is located below the barcode symbology).
- 2D barcodes (e.g., data matrix) can be used on shipper labels if the business group/division's supply chain can accommodate a 2D barcode. The group/team requesting the use of a 2D barcode must confirm that a 2D barcode can be used on the shipper label with their respective supply chain organization or contact.
- In the case where two barcodes are needed on the shipper label (e.g., when more than 48 characters must be encoded), one option is to stack the barcodes if the label contains enough vertical space to accommodate the other required content. Alternatively, two barcodes can also be placed side-by-side. See Option 5 in the 'Barcode Layout Options' section of Technical Appendix B for an example of two side-by-side barcodes.

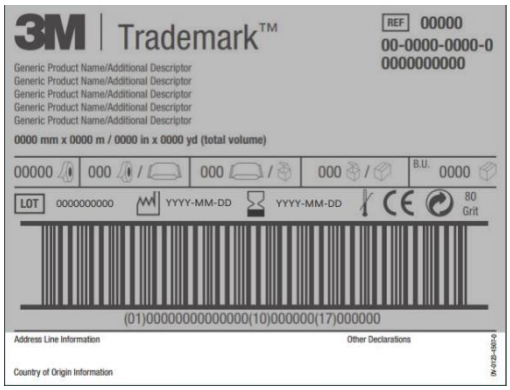
References/Resources:

- 3M Corporate General Specification CGS-161 (GS1-128 barcode symbology).
- 3M Corporate General Specification CGS-138 (EAN-13 and UPC-A barcode symbologies).
- 3M Corporate General Specification CGS-158 (ITF-14 barcode symbology).
- Global Supply chain Standards web link: **www.gs1.org**

Declaration Data Zone

Definition:

The **Declaration Data Zone** is used to communicate three primary pieces of information. These include: 1) Address line information, 2) Country of Origin information regarding the origin of the product (where the product was made) and 3) "Other Declarations" including, but not limited to: Import/Export information, other.



Business Rules:

- All declaration data **MUST** be located in the declaration data zone of the shipper label template (see visual provided above for location detail).
- Print only the legally required address. **Note:** Address line definitions may need to vary in order to comply with government regulations or licenses. In these situations, utilization of alternate address line definitions is allowable.
- It is recommended to use only 3M as a manufacturer.
- It is **NOT** recommended to include division or plant names as part of the address line (certain exceptions may apply).
- Declaration definitions **MUST** be identical with declaration definitions found on all other packaging materials across all package levels.
- Default rule is to **ALWAYS** define Country of Origin (CoO) information (reference "Visual References" below for additional details).
- CoO information should be located in close proximity (same side, same surface) to the geographic reference (address line) on the label and any geographic reference on the shipping carton. Font size for any geographic reference **MUST NOT** exceed font size for the CoO information.
- The default font size for CoO data should be 10 pt. and should be maintained regardless of label size.[1]
- "Made in Country" can be used when 3M is the manufacturer. The prefix "Assembled in" can **NOT** be used within 3M as this is considered unacceptable for certain countries. A disjunctive statement such as "Made in Country OR Country" can **NOT** be used.
- If 3M is **NOT** the manufacturer, then either "Made in Country for 3M" or two separate statements: "Made in Country" and "Distributed by 3M" must be used.
- If the 3M product is classified as a kit, deal, other, or includes multiple components, it is required that a CoO be defined for each significant component with the primary origin listed first followed by the other components in descending order of value unless each individual component shares the same CoO definition.
- CoO definition on the shipper label **MUST** match any other CoO definitions found on any other levels of packaging or the product itself. The CoO on the shipper label provides necessary information when crossing borders. It is also necessary for CoO information to reach the ultimate purchaser. This can relate to other levels of packaging.

[1] In the event that spacing constraints exist, it is acceptable to do the following: 1) reduce the font size of the declaration data below 10 pt. **Note:** This is **NOT** an option for shipper label artwork that will be direct print, and/or 2) adjust the spacing between multiple rows of declaration data, and/or 3) co-locate declaration data in both the Declaration Data Zone and the Expansion Zone (refer to Section V – Expansion Zone of this policy for detailed information).

Exceptions:

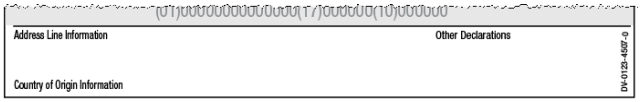
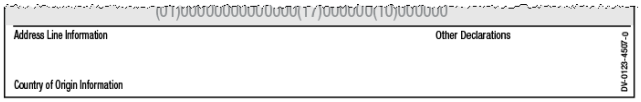
- None.

References/Resources:

- Country of Origin: US – CoO Marking Liaison (assigned by 3M business) / International – Customs Manager (located in each country).
- Address Line: Legal (assigned by 3M business).

Visual References:

Layout Options – Declaration Data Zone

Layout Option 1	Layout Option 2
 **Layout Option 1 (DEFAULT):** Should be used in all situations where space constraints don't exist. **Note:** This layout is the recommended option for defining Declaration Data Zone information. Where space constraints prevent the use of this layout option, default to layout option 2.	Before orientation change (no size reduction)  After orientation change (size reduction)  **Layout Option 2 (ALTERNATE):** Should be used **ONLY** in situations where space constraints **DO** exist (by rotating the 3M part number 90° clockwise, you should be able to decrease the overall height of the declaration data zone). **Note:** When reducing the overall height of the Declaration Data Zone, it is still important to ensure, (wherever possible), that the location/placement of the barcode symbol is 1.5" from the natural bottom of the shipping container as depicted in the illustration outlined below.  A = 19 mm (0.75") B = 38 mm (1.5")

Technical Appendix B: Barcodes

Symbology Type: GS1-128 (formerly known as UCC/EAN-128)

Design Specifications

- **X-Dimension**: The minimum and target X-dimension is 0.495 mm (0.019 inches). **Note:** If the size of the label does not allow for this minimum x-dimension, then it can be reduced to fit the label. The absolute minimum X-dimension is 0.250 mm (0.00984 inches). However, this might mean that automated scanning of the bar code is no longer possible and it will only be able to be read by hand scanning.
- **Bar Height:** Minimum and target bar height is 32 mm (1.25 inches). If a shorter barcode is needed due to size constraints of the label stock, this may be reduced to as low as 19 mm (0.75 inches) with business approval.
- **Quiet Zone:** Minimum quiet zone width before and after the bar code symbol is a calculation that is 10x the value of the defined X-Dimension (target quiet zone is 10 mm (0.40 inches) / minimum quiet zone width is 5 mm (0.2 inches)).
- **Human Readable:** The human readable digits should be centered below the bar code symbol. Although there is no font style or font size specified for the human readable, it is recommended to use a san serif type font (Helvetica Neue or Arial) and minimum font size that will be clearly legible.
- **Print Quality:** Refer to the 'Print Quality - Barcodes' section below for details.
- **Symbol Width:** Maximum symbol width, including quiet zones is 165 mm (6.5 inches).
- **Encoding:** The maximum number of characters that can be encoded is 48 (includes the Application Identifier(s) and Function Code 1 (FNC1) when it is used as a data separator). If more than 48 characters needs to be encoded, it must be split into two barcodes.

    - Use {CODE C} for encoding data that consists of an even number of digits. For example: GTIN, Expiration Date, or Manufacturing Date.
    - Use {CODE B} for printing single numbers or letters. For example: Lot/Batch number or Serial number. **Note:** If the Lot/Batch number or Serial number consists of an even number of digits then it could be printed in {CODE C}.
    - It may be possible to use an Auto-switching setting to systematically control code type (Code A, B, or C) for data encoding.

Note: GS1-128 requires the use of a Function 1 character at the beginning (right after the start pattern) which indicates the use of globally defined application identifiers.

Encoding Secondary Information Requirements

When utilizing the GS1-128 symbology to encode secondary information, the following requirements apply:

Application identifiers (AIs) options:

	Application Identifier	Description		Application Identifier	Description
A	(01)	GTIN			
B	(17)	Expiration Date	**OR**	(11)	Manufacture/Production Date
C	(10)	Batch/Lot Number	**OR**	(21)	Serial Number

- They should be concatenated (joined together in one bar code) wherever possible and appear in order from left to right as a) followed by b) followed by c). If either b) or c) does not exist, then just print the AI that does exist.
- If the shipping case is also the retail pack then the GTIN must be printed in an EAN-13 or UPC-A bar code. If it is also required to print secondary information, then this should be printed to the right of the EAN-13/UPC-A barcode symbol in a GS1-128 bar code. **Note:** Ensure quiet zone requirements on both barcodes are met.

Application Identifier AI (01): Identification of Trade Item (GTIN)

The Application Identifier (01) indicates that the data field includes the GTIN of the contained trade items.

Formatting Requirements: AI(01)		
Application Identifier	**GTIN (Global Trade Identification Number)**	**Check Digit**
(01)	N_1 N_2 N_3 N_4 N_5 N_6 N_7 N_8 N_9 N_{10} N_{11} N_{12} N_{13}	N_{14}

Application Identifier AI (17): Expiration Date

The Application Identifier (17) indicates that the data fields contain an expiration date.

Formatting Requirements: AI(17)			
Application Identifier	**Expiration Date**		
	Year	Month	Day
(17)	N_1 N_2	N_3 N_4	N_5 N_6

Application Identifier AI (11): Production Date

The Application Identifier (11) indicates that the data fields contain a production date (manufacture date).

Formatting Requirements: AI(11)			
Application Identifier	**Production Date**		
	Year	Month	Day
(11)	N_1 N_2	N_3 N_4	N_5 N_6

Application Identifier AI (10): Batch or Lot Number

The Application Identifier (10) indicates that the data field contains a batch or lot number. The batch or lot number is used to capture data that is considered relevant to the manufacturer. Examples of batch or lot number definitions include, but are not limited to: a production lot number, a shift number, a machine number, a time, or an internal production code. The data may be alphanumeric and can be up to a maximum of 20 characters.

Note: When utilizing a concatenated GS1-128 symbol (e.g.: GTIN + Expiration Date or Manufacturing Date + Lot Number or Serial Number), the maximum number of characters that can be encoded is 48 characters which limits the lot/batch number maximum character length to 15 digits.

Formatting Requirements: AI(10)	
Application Identifier	**Batch or Lot Number**
(10)	variable length X_1 ⟶ X_{20}

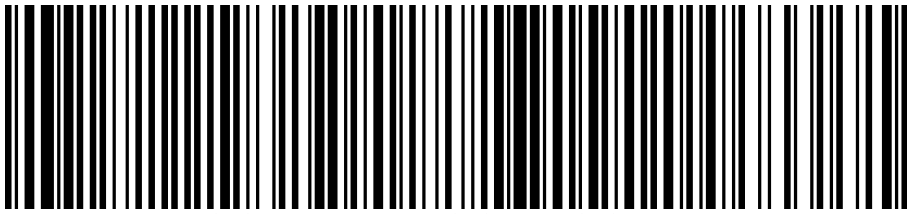
Application Identifier AI (21): Serial Number

The Application Identifier (21) indicates that the data field contains a serial number. A serial number is used to capture data that is typically assigned to an entity for its lifetime. The data is alphanumeric and can support up to a maximum of 20 characters. The manufacturer determines the serial number.

Note: When utilizing a concatenated GS1-128 symbol (e.g.: GTIN + Expiration Date or Manufacturing Date + Lot Number or Serial Number), the maximum number of characters that can be encoded is 48 characters which limits the serial number maximum character length to 15 digits.

Formatting Requirements: AI(21)	
Application Identifier	**Serial Number**
(21)	variable length X_1 ⟶ X_{20}

Example



(01)05010027675025(17)060714(10)123abc

GS1-128 Symbol
Product GTIN encoded: **05010027675025**
Expiration Date encoded: **July 14th 2006**
Batch/Lot Number encoded: **123abc**

Note: "( )" surrounding Application Identifiers are **NOT** encoded.

Symbology Type: ITF-14 (Interleaved Two-of Five)

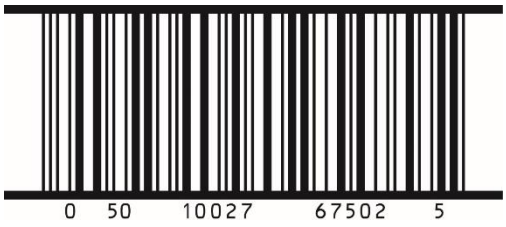
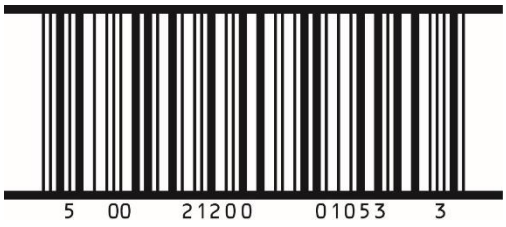
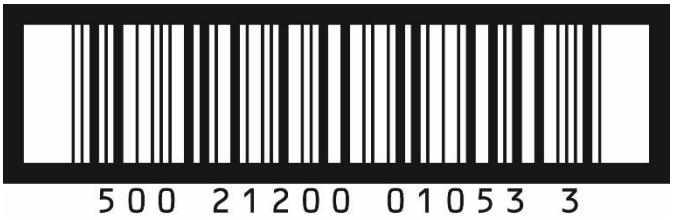
Design Specifications

- **X-Dimension:** The minimum, maximum, and target X-dimension for an ITF-14 symbol is 0.495 mm (0.019 inches). **Note:** Recommended minimum X-dimension when printing directly is 0.71 mm (0.028 inches).
- **Ratio:** The ratio of wide to narrow bars must be between 2.25:1 and 3:1 (target is 2.5:1).
- **Bar Height:** The minimum and target dimension for bar height is 32 mm (1.25 inches). If a shorter barcode is needed due to size constraints of the label stock, this may be reduced to as low as 19 mm (0.75 inches) with business approval.
- **Quiet Zone:** Minimum quiet zone width before and after the bar code symbol is a calculation that is 10x the value of the defined X-Dimension (target quiet zone is 10 mm (0.40 inches) / minimum quiet zone width is 5 mm (0.2 inches)).
- **Human Readable:** The human readable digits should be centered below the bar code symbol. Although there is no font style or font size specified for the human readable, it is recommended to use a san serif type font (Helvetica Neue or Arial) and a minimum font size that will be clearly legible.

  Notes:
  - Check-digit to be included as part of the human readable definition.
  - Spacing between human readable data below barcode symbol is NOT required, however is recommended (as shown in examples provided below) for ease of readability.

- **Bearer Bars:** It is required to have both top and bottom horizontal bearer bars which should have a minimum thickness of 1 mm (0.039 inches) and extend across the entire width of the label size (minimum thickness of bearer bars is 2x the X-dimension used). **Note:** It is **NOT** required to implement horizontal bars across the entire width of the label size, but the implementation of the horizontal bars has been designed as a standard in an effort to simplify the design of shipper labels and promote consistency between different print processes and barcode symbologies.

Note: When print process is defined as direct print, bearer bar surrounding entire barcode symbology is set at: 3,18 mm (0.125 inches).

Examples	
 ITF-14 symbol Product GTIN encoded: **05010027675025** Print Processes: Preprinted label and “On-Demand” label	 ITF-14 symbol Product GTIN encoded: **50021200010533** Print Processes: Preprinted label and “On-Demand” label
 ITF-14 symbol Product GTIN encoded: **05010027675025** Print Processes: Direct print	 ITF-14 symbol Product GTIN encoded: **50021200010533** Print Processes: Direct print

Symbology Type: EAN-13/UPC-A

Design Specifications

- **X-Dimension:** The minimum and target X-dimension is 0.495 mm (0.019 inches). This may also be referred to as 150% magnification.
- **Bar Height:** Minimum bar height (including human readable) must be 38.87 mm (1.53 inches). **Note**: It is allowed to truncate the symbol height down to 32 mm (1.25 inches) if space is a constraint, however certain risks may exist as it relates to barcode scannability.
- **Quiet Zone:** Minimum quiet zone width before and after the bar code symbol is a calculation based off the defined X-Dimension. EAN-13: Left Side = 11x / Right Side = 7x) / UPC-A: Left Side = 9x / Right Side = 7x. Target quiet zone is 10 mm (0.40 inches).
- **Human Readable:** The human readable digits appear below the bar code symbol. Although there is no font style or font size specified for the human readable, it is recommended to use a san serif type font (Helvetica Neue or Arial) and a font size of 2.75 mm (0.1") that will be clearly legible. **Note:** Check-digit to be included as part of the human readable definition.

Examples	
 EAN-13 symbol Product GTIN encoded: **05010027675025** Print Processes: Preprinted label and "On-Demand" label **Note:** Right most "5" is mod 10 check digit.	 UPC-A symbol Product GTIN encoded: **00051138582906** Print Processes: Preprinted label and "On-Demand" label **Note:** "6" is mod 10 check digit.
 EAN-13 symbol Product GTIN encoded: **05010027675025** Print Processes: Direct print **Note:** Right most "5" is mod 10 check digit.	 UPC-A symbol Product GTIN encoded: **0005113858290** Print Processes: Direct print **Note:** "6" is mod 10 check digit.

Print Quality – Barcodes

Due to the fact that barcodes are intended to be read in different supply chain environments, overall barcode print quality is critical. **Note:** It is also essential that the Global Trade Identification Number (GTIN) data encoded in the barcode symbol be consistent with corporate and/or local databases. This section of the policy has been developed in order to provide baseline information regarding barcode print quality requirements. For detailed requirements, please refer to the following test methods:

- ANSI Test Method: X3.182
- ISO Test Method: ISO/IEC 15416

Note: The ANSI test methodology was originally known as ANSI verification because it was first described in the United States standard ANSI X3.182, published in 1990 under the title Bar Code Print Quality Guidelines. The method was then defined in a European standard (EN 1635), published in 1995, and an international standard (ISO/IEC 15416), published in 2000. ISO/IEC 15416 is the definitive international specification of the ISO bar code verification methodology, and the numeric grading system is used. The method, as described in the ISO/IEC 15416 standard, is technically fully compatible with the ANSI X3.182 and EN 1635 method, so verifiers based on these standards are not obsolete.

Barcode Quality Chart

Symbology Type	Aperture Setting	Frequency Setting *(wavelength)*	Test Method: ANSI X3.182 Minimum Symbol Grade	Test Method: ISO/IEC 15416 Minimum Symbol Grade
EAN-13	6 mils (0,15 mm)	670 nm (+/- 10)	1.5 (GPA) or "C"	1.5/06/670
UPC-A	6 mils (0,15 mm)	670 nm (+/- 10)	1.5 (GPA) or "C"	1.5/06/670
ITF-14 (< 0.63 mm (0.025 inches))	10 mils (0,25 mm)	670 nm (+/- 10)	1.5 (GPA) or "C"*	1.5/10/670
ITF-14 (> or = 0.63 mm (0.025 inches))	20 mils (0,50 mm)	670 nm (+/- 10)	1.5 (GPA) or "C"*	1.5/20/670
GS1-128	10 mils (0,25 mm)	670 nm (+/- 10)	1.5 (GPA) or "C"	1.5/10/670

Note: When printing a barcode symbol on corrugated using a natural brown Kraft liner board, the barcode symbol average grade may fall to 0.5 (ISO/IEC) or “D” (ANSI); however, only in the symbol contrast parameter. All other parameters, especially decodability, must receive an average minimum ANSI grade of 1.5 (GPA) or “C” (ISO/IEC 1.5) in order to ensure a readable barcode.

Barcode Layout Options

Based on application requirements, the utilization of different barcode symbologies, or combinations, may be required. In an effort to assist with decisions around allowable layout options for barcode information, several options have been defined and outlined below.

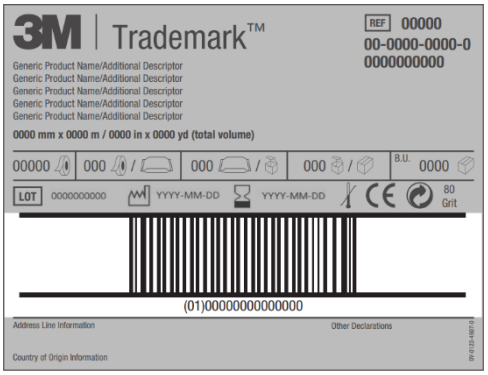
Note: Please consult with the 3M business to determine barcode symbology requirements.

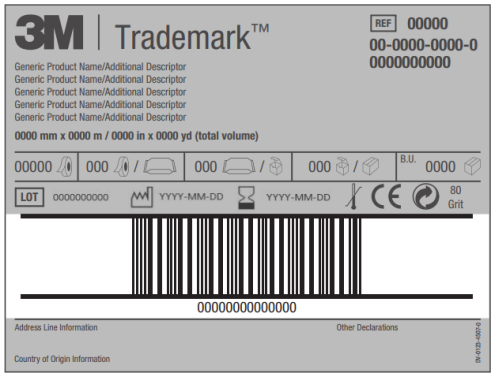
Option 1

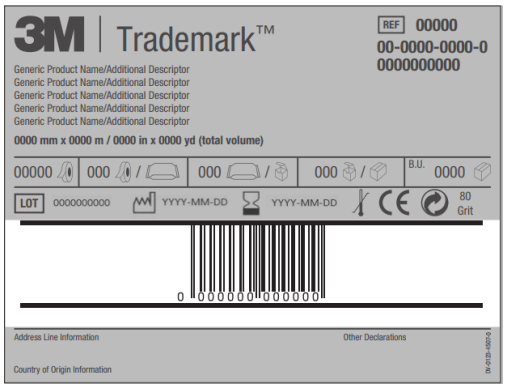
Utilization of GS1-128, ITF, EAN-13, or UPC-A barcode symbology to encode ONLY a Global Trade Identification Number (GTIN).

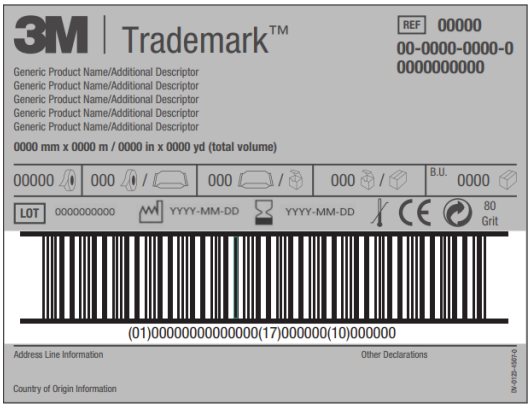
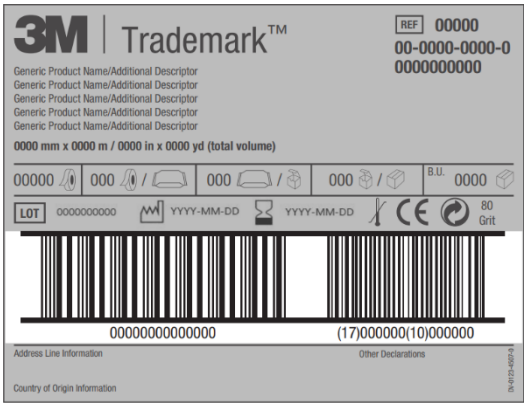
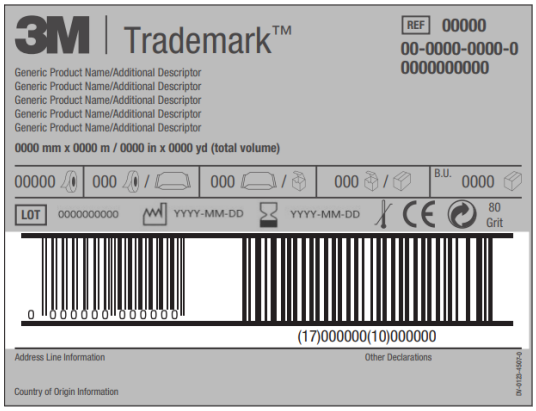
Notes:

- Barcode to be centered in barcode data zone.
- Barcode symbologies outlined in images (top to bottom) are as follows: GS1-128, ITF-14, and EAN-13.





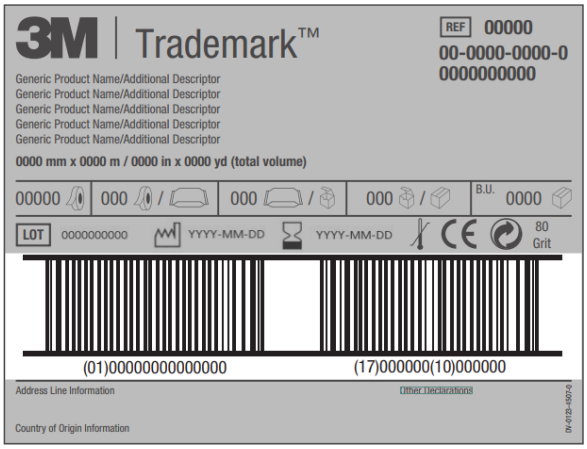


Option 2 Utilization of a GS1-128 barcode symbology to encode Global Trade Identification Number (GTIN) and secondary information. **Note**: Example shows encoding of product GTIN AI (01), expiration date AI (17), and lot number AI (10) information.	
Option 3 Utilization of an ITF barcode symbology (left justification) to encode Global Trade Identification Number (GTIN) in conjunction with the utilization of a GS1-128 barcode symbology (right justification) to encode secondary information.	
Option 4 (Exception) Utilization of an EAN-13/UPC-A barcode symbology (left justification) to encode Global Trade Identification Number (GTIN) in conjunction with the utilization of a GS1-128 barcode symbology (right justification) to encode secondary information. **Note**: Example covers EAN-13 barcode symbology for encoding GTIN data.	

Option 5

Utilization of two separate GS-128 barcode symbols. First GS1-128 barcode symbology (left justified) would be used to encode Global Trade Identification Number (GTIN) and second GS1-128 barcode symbology (right justified) would be used to encode secondary information.

Note: This option is to be specifically used if you are trying to comply with X-Dimension definitions. In this situation, stay as close to the target X-Dimension for the GTIN and shrink the X-Dimension associated with the secondary information as required (minimize reductions wherever possible).

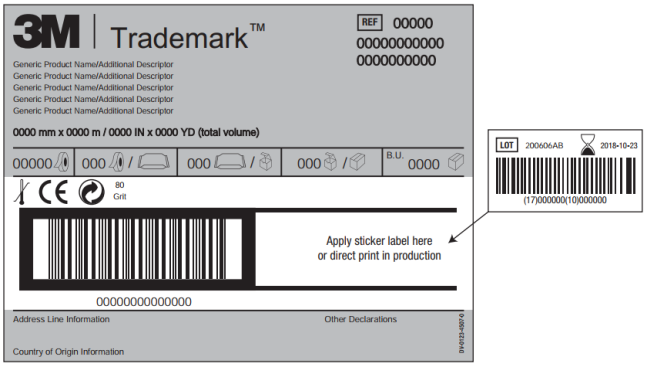


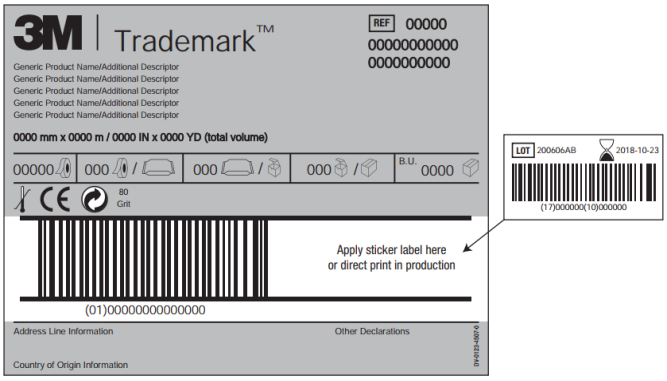
Option 6 – Applies to direct print or preprinted labels ONLY.

"Fixed" data (Global Trade Identification Number – GTIN) along with rest of shipper label is preprinted and a spot label is used to define secondary information.

Notes:

- Top example reflects shipper label printed direct using an ITF-14 barcode symbology to encode GTIN information. Spot label incorporates GS1-128 barcode symbology and is used to encode secondary information in both human readable and barcode format.
- Bottom example reflects shipper label as a preprinted label using a GS1-128 barcode symbology to encode GTIN information. Spot label incorporates GS1-128 barcode symbology and is used to encode secondary information in both human readable and barcode format.





Technical Appendix C: Shipper Label Pictograms

When developing shipper labels, the use of pictograms is strongly recommended as a substitute for text when developing content in the Pack-Out Data Zone. The utilization of pictograms becomes especially useful when dealing with multilingual shipping containers. As with the other components of this policy, use of Corporate and/or business approved pictograms will help reduce confusion with our customers and eliminate redundant design efforts.

Simplicity of design is important as it enables 1) ease of reproduction across all print processes for shipper labels and 2) standardization of "like" pictograms. As a result, pictograms used should reflect simple designs, and no shading and number of lines, and consistent line widths. Sizing of pictograms should allow for adequate print quality and be appropriate relative to other copy (refer to "Technical Appendix F: Line Art Guidelines" located in the back of this policy for detailed information surrounding business rules and other related requirements associated with both the design and implementation of line art on shipper labels).

Notes:

- Pictograms included in examples in this policy are for reference purposes only.

Technical Appendix D: GTIN Assignment Rules

Introduction

In Europe, and in most other countries, the assignment of Global Trade Identification Numbers (GTINs) to 3M products is the responsibility of 3M Packaging Solutions. Therefore, the following rules should be applied.

Notes:

- In the US, and in some other countries, the assignment of Global Trade Identification Numbers (GTINs) is not currently under the responsibility of 3M Packaging Solutions. Therefore, these rules should be communicated to the group responsible for allocating the GTIN's and applied wherever possible.
- It is necessary to obtain a GS1 Company Prefix before assigning GTINs to products. This prefix is used to ensure globally uniqueness of all numbers in all supply chains. Contact the country GS1 Member Organization or see **www.gs1.org** for more information. Each GTIN is made up of the company prefix portion and item reference. It is necessary for the functional area responsible for GTIN assignment to ensure that numbers are not assigned to multiple products inadvertently.
- Company prefixes are typically 7 digits long and all examples below reflect that usual length. However, company prefixes can be of variable length based on the size of the range that is purchased.

GTIN Assignment Rules

All GTINs must be 14 digits in length even though its data carrier (bar code) may contain only 12 digits [i.e. a U.P.C.], 13 digits [i.e. an EAN-13], 14 digits [GS1-128 or ITF-14] or 8 digits [EAN-8]. The GTIN should be right justified in the database and pre-filled with leading zeros to make up to 14 digits. See examples below.

Symbology Type	Character Encoding													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
UPC-A	0	0	x	x	x	x	x	x	x	x	x	x	x	C
EAN-13	0	x	x	x	x	x	x	x	x	x	x	x	x	C
GS1-128 or ITF-14 (with leading packaging indicator)	x	x	x	x	x	x	x	x	x	x	x	x	x	C
GS1-128 or ITF-14 (without leading packaging indicator)	0	x	x	x	x	x	x	x	x	x	x	x	x	C

Key		
0 = Leading Zeros	X = Encoded Character	C = Check Digit

Assigning GTINs to Packaging Hierarchies

- The consumer unit pack level should always be 12 digits (if GTIN is assigned within North America) or 13 digits (if GTIN is assigned outside North America) and pre-filled to 14 digits with leading zeros.
- If a GTIN is required at the unpackaged product level (pack level 1) then this must always be 12 or 13 digits and pre-filled with leading zeros.
- When assigning GTINs to packaging levels above the consumer unit pack level there is a choice of either using a leading packaging indicator and keeping the same base number, or using a completely different 12- or 13-digit number at each pack level and pre filling with leading zeros. See examples below.

- If a product only has one physical packaging level (for example pack level 6), the GTIN should be 12 or 13 digits and pre-filled to 14 digits with leading zeros. See examples below.

Using Leading Packaging Indicators

The pack level 2 is the base number and all pack levels above this are assigned a packaging indicator as shown and the check digit is then recalculated.

Pack Level	Pack Level Description	Character Encoding													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1*	Product	0	1	2	3	4	5	6	7	1	0	9	2	3	C
2	Primary	0	1	2	3	4	5	6	7	1	2	3	4	5	C
3	Intermediate #1	3	1	2	3	4	5	6	7	1	2	3	4	5	C
4	Intermediate #2	4	1	2	3	4	5	6	7	1	2	3	4	5	C
6	Shipper #1	5	1	2	3	4	5	6	7	1	2	3	4	5	C
7	Shipper #2	6	1	2	3	4	5	6	7	1	2	3	4	5	C
8	Pallet	7	1	2	3	4	5	6	7	1	2	3	4	5	C
		Packaging Indicator	GS1 Company Prefix							Item Reference					Check Digit

* Pack level 1 does **NOT** require that a Global Trade Identification Number (GTIN) be assigned.

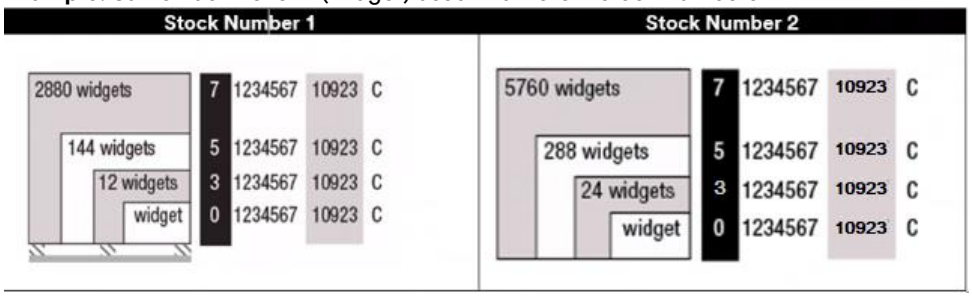
Using Leading Packaging Indicators with Common Pack Level 2

If the consumer unit (pack level 2 in this example) is used in more than one packaging hierarchy [same pack level 2 used in more than one stock number] then the next pack level would be assigned a completely new GTIN and this would then act as the base number. See diagram below for example and also additional diagram showing different packaging hierarchies.

Pack Level	Pack Level Description	Character Encoding													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1*	Product	0	1	2	3	4	5	6	7	1	0	9	2	3	C
2	Primary	0	1	2	3	4	5	6	7	1	2	3	4	5	C
3	Intermediate #1	0	1	2	3	4	5	6	7	4	5	6	7	8	C
4	Intermediate #2	4	1	2	3	4	5	6	7	4	5	6	7	8	C
6	Shipper #1	5	1	2	3	4	5	6	7	4	5	6	7	8	C
7	Shipper #2	6	1	2	3	4	5	6	7	4	5	6	7	8	C
8	Pallet	7	1	2	3	4	5	6	7	4	5	6	7	8	C
		Packaging Indicator	GS1 Company Prefix							Item Reference					Check Digit

* Pack level 1 does **NOT** require that a Global Trade Identification Number (GTIN) be assigned.

Example: Same Pack Level 2 (widget) used in different stock numbers.



Using Different Numbers at Each Pack Level

The other option is to use completely different 12- or 13-digit numbers at each pack level and pre-fill with leading zeros. See diagram below for example.

Pack Level	Pack Level Description	Character Encoding													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1*	Product	0	1	2	3	4	5	6	7	1	0	9	2	3	C
2	Primary	0	1	2	3	4	5	6	7	1	2	3	4	5	C
3	Intermediate #1	0	1	2	3	4	5	6	7	7	2	6	9	0	C
4	Intermediate #2	0	1	2	3	4	5	6	7	3	1	8	5	9	C
6	Shipper #1	0	1	2	3	4	5	6	7	4	7	2	9	6	C
7	Shipper #2	0	1	2	3	4	5	6	7	6	3	2	5	1	C
8	Pallet	0	1	2	3	4	5	6	7	5	8	3	1	7	C
		Packaging Indicator	GS1 Company Prefix							Item Reference					Check Digit

* Pack level 1 does **NOT** require that a Global Trade Identification Number (GTIN) be assigned.

Product with Pack Level 6 Only

The pack level 6 is the base number and all pack levels above this are assigned a packaging indicator as shown and the check digit is then recalculated.

Pack Level	Pack Level Description	Character Encoding													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
6	Shipper #1	0	1	2	3	4	5	6	7	1	2	3	4	5	C
7	Shipper #2	6	1	2	3	4	5	6	7	1	2	3	4	5	C
8	Pallet	7	1	2	3	4	5	6	7	1	2	3	4	5	C
		Packaging Indicator	GS1 Company Prefix							Item Reference					Check Digit

Technical Appendix E: Typeset Copy Requirements for Hazardous (User) Labeling

Scope

This technical appendix provides guidance on usage of font sizes when incorporating hazard warning text on labels, as developed for 3M products intended to be placed on the market in the European Community, the European Economic Area and Switzerland.

Background

Directives 67/548 EEC and 1999/45 EC , as amended, require that the information related to classification of substances and preparations shall be marked on a label or the package itself, so that it can be "read horizontally". This raises the question about legibility of the text: when can a text be read? In Austria, the local Chemikalienverordnung 1999 (BGBl II 81/2000) requires that labels for receptacles >1 L show characters of 1.8 mm (which equals +/- 6pt). Similarly, in Germany the TRGS 200 refers, as an example on how "legibility" should be interpreted, to the Standard DIN 1450 , which again indicates that 1.8 mm is the minimum character size. In order to get a pan European position on what is considered an acceptable font size, an enquiry was organized amongst the local EU 3M subsidiary toxicology coordinators[1]. This document presents this position and provides guidance on the use of fonts and their sizes to make a label legible.

[1] Reference "Contributing Author Listing" below for additional details (November 2007) – for minimum font sizes for hazard text labeling

Fonts

According to the 3M Corporate Identity Department, fonts used for hazard warning text are not brand image related. Therefore, the typefaces Arial and Helvetica can be used[2]. The guidance in this instruction applies to following fonts, printed black on white:

- Arial (Regular, Bold, Narrow)
- Helvetica: (Regular, Bold, Condensed, Condensed Bold)

Note: For other fonts and color combinations, the local toxicology coordinators of the destination countries need to be consulted.

[2] 3M Corporate Identity, Design & Communications (08/10/2007)

Instruction

As a rule of thumb, the hazard warning text as required by 67/548EEC and 1999/45 EC should be printed in one of the above typefaces in minimum 6 pt., for all destination countries. For those countries requiring a textual difference between the Risk statements and the Safety statements, the typefaces used should be respectively "bold" and "regular" as applicable. If labels and/or artwork is developed solely for any of the countries (see table below) that allow for a smaller font, all the text should be placed in the largest font size that is common to all countries covered by the label.

Example: If a label is to be developed for Belgium and the Netherlands, the table indicates that 5pt in any of the fonts would be acceptable. However, if this label also must cover France, then again 6pt. is the minimum required font size, because France does not consider 5pt as an acceptable font size.

Country	Arial	Arial (Bold)	Arial Narrow	Arial Narrow (Bold)	Helvetica	Helvetica (Bold)	Helvetica Condensed	Helvetica Condensed (Bold)	Overall Acceptance	Comment
Germany	6	6	6	6	6	6	6	6	6	Legal requirement; 6pt. 75% horizontally scaled only acceptable for and Arial Bold, Helvetica and Helvetica Bold.
Belgium	5	5	5	5	5	5	5	5	5	6pt. 75% horizontally scaled only acceptable for Helvetica and Helvetica Bold ; 7pt. 75% horizontally scaled overall acceptable but prefer straight 7pt.
France	6	6	6	6	6	6	6	6	6	Arial Narrow 6pt. as such not accepted; 6pt. 75% scaled further acceptable for : Arial Bold , Arial narrow, Arial Narrow Bold and Helvetica Bold.
Netherlands	5	5	5	5	5	5	5	5	5	
Spain	5	5	5	5	5	5	5	5	5	All 5pt. and above are acceptable.
Italy										No response
Greece	4	4	4	4	4	4	5	5	No Indication	Greece
Turkey	6	5	6	5	5	5	5	5	6	6pt. 75% horizontally scaled only acceptable for Arial, Arial Bold, Helvetica and Helvetica Bold.
Czech	4	4	7	7	4	4	4	4	6	Except for Arial Narrow and Arial Narrow Bold, the 6pt. 75% horizontally scaled fonts are acceptable.
Slovakia										No response
Hungary	6	6	6	6	6	5	6	6	6	6pt. 75% horizontally scaled only acceptable for Helvetica Bold and Arial Bold; 7pt. 75% horizontally scaled overall acceptable.
Denmark										No response
Sweden	6	6	6	6	6	6	6	6	No Indication	Our feedback related to font size assumes that the print quality is as good as in your example PDF. If the print is weak or of not as clear the font needs to be bigger).
Norway	6	6	6	7	6	6	6	None	6 -7	Overall, font size smaller than 6pt. should not be used unless absolutely necessary (e.g.: in case of very small products with only one language).
Finland	6	6	6	6	6	6	6	6	6	Minimum 6 pt. ; no 75% horizontally scaled acceptable.
Portugal	6	6	6	6	6	6	6	6	6	6pt. 75 % horizontally scaled only acceptable for Helvetica Bold ; 7pt. 75% horizontally scaled overall acceptable.
Poland	6	6	6	6	6	6	6	6	6	6pt. 75% horizontally scaled not acceptable.
Switzerland	6	6	6	6	6	6	6	6	6	6pt. 75 % horizontally scaled not acceptable.
Austria	1,8 mm	1,8 mm	1,8 mm	1,8 mm	1,8 mm	1,8 mm	1,8 mm	1,8 mm	1,8 mm	Legal requirement for packages > 1L ;1,8 mm is between 5 and 6pt. ; below 1L : preferably 1,8 mm.
UK	5	5	5	5	5	5	5	5	5	All 5pt. and above are acceptable.

Contributing Author Listing

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Technical Appendix F: Line Art Guidelines

Scope

This technical appendix defines recommended guidelines associated with the creation of line art graphics used in the development of packaging artwork. Following the prescribed guidelines set forth in this document will aide in the elimination of redundant line art graphics and potential errors associated with the implementation and on-going maintenance of these graphic assets.

Definition

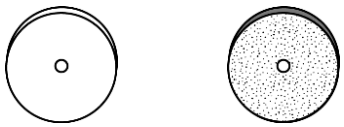
Line art is defined as any image that consists of distinct straight and curved lines placed against a (usually plain) background, without gradations in shade (darkness) or hue (color) to represent two or three-dimensional objects. Line art emphasizes form and outline over color, shading, and texture. However, areas of solid pigment and dots can also be used in addition to lines. The lines in a piece of line art are typically of a constant width.

Design Guidelines

Business Rules:

- Line art graphics should be designed to properly represent the item, not to act as an exact replica.
- Line art for product representation should be designed to represent a family of products and not attempt to depict product specific features that establish uniqueness (refer to the example outlined below as a reference for understanding recommended design strategies associated with the development of line art used to represent products).

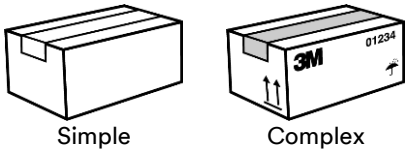
Example:



Simple Complex

- Line art for package representation should be designed to represent generic features of the packaging component and not attempt to depict specific features of the package that establish uniqueness (refer to the example outlined below as a reference for understanding recommended design strategies associated with the development of line art used to represent packaging).

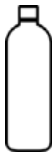
Example:



Simple Complex

- Line art should demonstrate simplicity by minimizing lines and associated detail (simplification of line art enables ease of reproduction and enhances overall print quality).
- Minimum line thicknesses used to create line art should be no less than 53 mm or 1.5 pt. Utilizing line thicknesses that are less than 53mm or 1.5 pt. could negatively impact 1) print density and/or 2) overall print quality in reproduction.
- Utilization of both two-dimensional and three-dimensional designs is acceptable, but wherever possible, it is recommended to design two-dimensional line art for simplification purposes.

Example:



2-Dimensional

3-Dimensional

- Avoid the inclusion of halftones or grayscale content in line art as this could negatively impact 1) print density and/or 2) overall print quality in reproduction.
- Avoid the inclusion of typeset copy as part of the design of line art as this can cause legibility issues when incorporated as a graphic element in a piece of packaging artwork (especially if the image is scaled when inserted into an artwork file).
- Line art graphics should be designed to include only one color (typically black). Inclusion of multiple colors when designing line art could negatively impact 1) print quality and/or 2) system performance when the line art is printed through the use of an "on-demand" printing system (e.g. Loftware).

File Structure Guidelines

- Line art graphics should be created in Adobe Illustrator software (current version) and saved as one of the following formats based on how the image will be distributed and consumed: EPS (Encapsulated PostScript) – Macintosh or TIFF (Tagged image file Format) – "on-demand" printing system (e.g. Loftware).

  Note: PDF (Portable Document Format) file format is recommended to use when routing line art for approvals.

- Default resolution for line art graphics should be 300 dpi (unless otherwise specified due to print process or digital printer requirements).
- When saving line art files, it is recommended to center the image within the image area and eliminate any "white space" that directly surrounds the image (adhering to this recommendation will maximize flexibility with image placement and/or scaling in an artwork file).
- Recommended footprint for image area should be 1 inch (24mm) in height (unless otherwise specified due to print process or digital printer requirements).

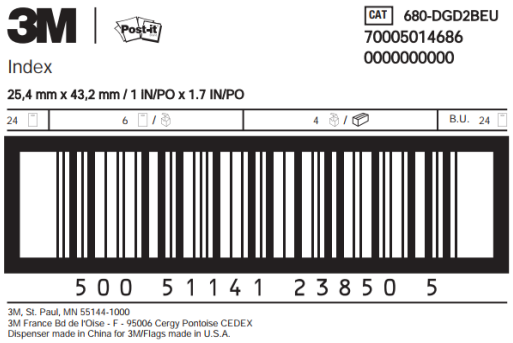
Scaling

- When scaling line art, there are several considerations that should be taken into account. Adherence to these guidelines related to scaling should maximize overall print quality/print density in reproduction. EPS: Since EPS files are infinitely scalable, the target footprint (size) of the line art is not as critical when it comes to layout/placement in an artwork file. TIFF: Since flexibility with scaling TIFF files is limited, it is not recommended to scale a TIFF image +/-25% beyond its original size as this could negatively impact overall print quality in reproduction.
- It is not recommended to incorporate typeset copy as part of the line art because the typeset copy will scale in parallel resulting in poor overall print quality in reproduction. **Note:** As a general rule of thumb, when making "significant" adjustments to scale when line art saved as a TIFF file, it is recommended that proper testing be conducted in order to understand how those scaling adjustments impact overall print quality in reproduction.

Technical Appendix G: Label Examples and Additional Layout Options

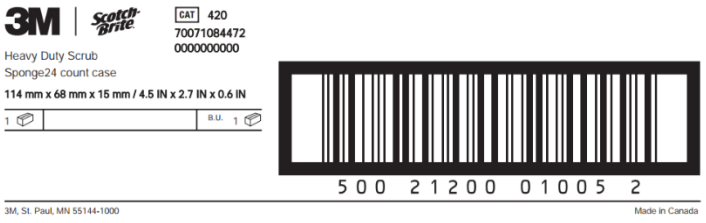
Label Examples

Note: Examples not to scale, for representation purposes only.

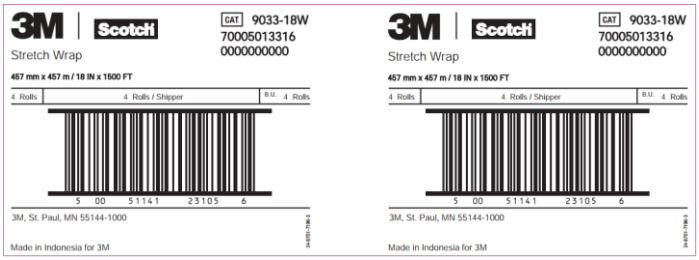


Shipper Label (Direct Print) – Single Panel Layout

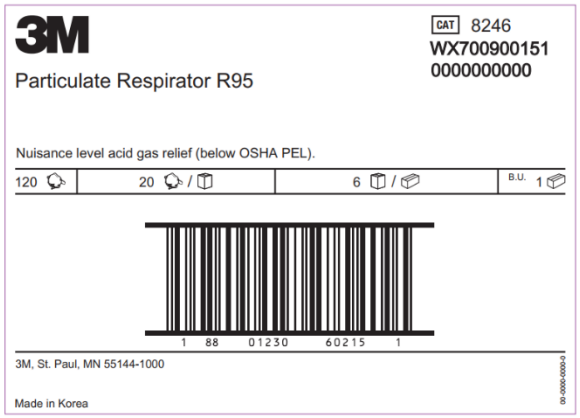
Shipper Label (Direct Print) – Single Panel Layout



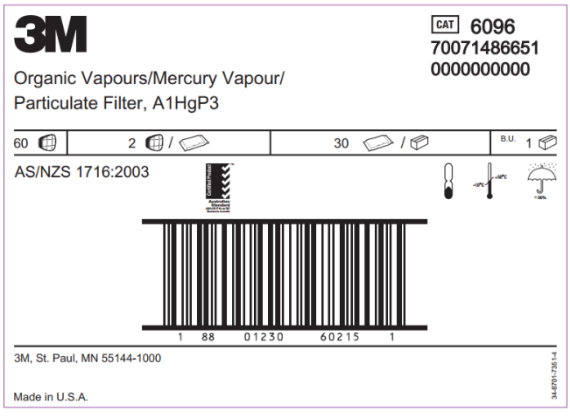
Shipper Label (Direct Print) – Shallow Depth Case Layout



Shipper Label – Dual Panel Layout



Shipper Label – Single Panel Layout



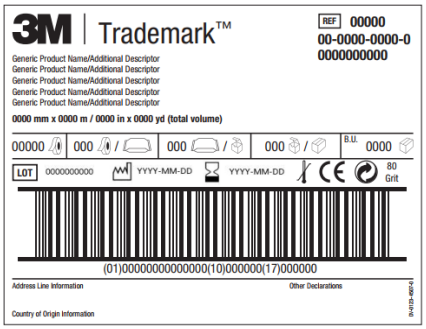
Shipper Label – Single Panel Layout

Additional Layout Options

The illustrations provided below are examples of additional layout options:

Single Panel Layout

Application: Used when labeling a single panel/side/area of a shipping container.

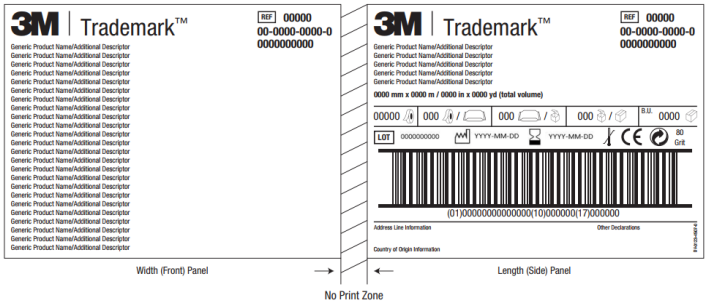


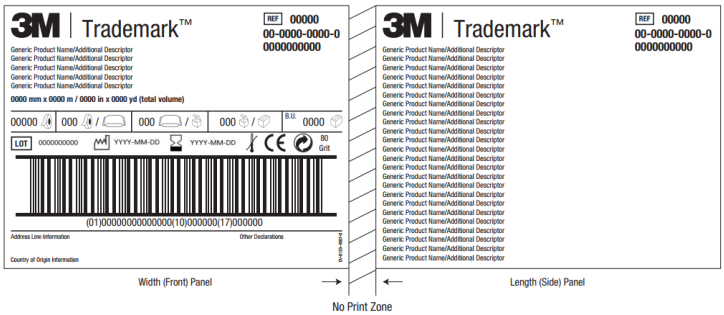
Dual Panel Layout

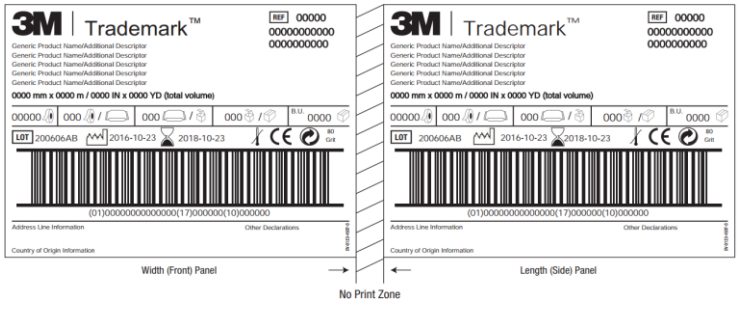
Application: Used when labeling multiple panels/sides of a shipping container (i.e.: corner-wrap labeling).

Notes:

- Positioning of information on end and length panel may be reversed.
- When developing labels that will be applied to multiple panels of a shipping container, a "no print zone" will need to exist. The specific sizing of the "no print zone", however, will be dependent on print technology (i.e.: direct print, preprinted label, or "on-demand" label) and related application requirements. **Note**: When determining required "no-print zone", ensure that vertical bars of the barcode symbol are at least 19,05 mm (0.75 inches) away from the vertical edge of the panel so that proper quiet zone tolerances/spacing is maintained.
- When utilizing dual panel layouts, default is to place barcode data on width (front) panel to enable accessibility of barcode data when products are stacked on pallets or placed in racks. In other situations, barcode data is required to be placed on length (side) panel to enable automated scanning of barcode data based on how the shipping container is placed on a conveyor system.





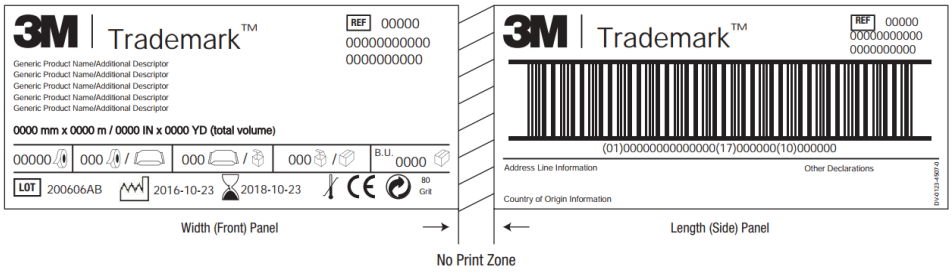


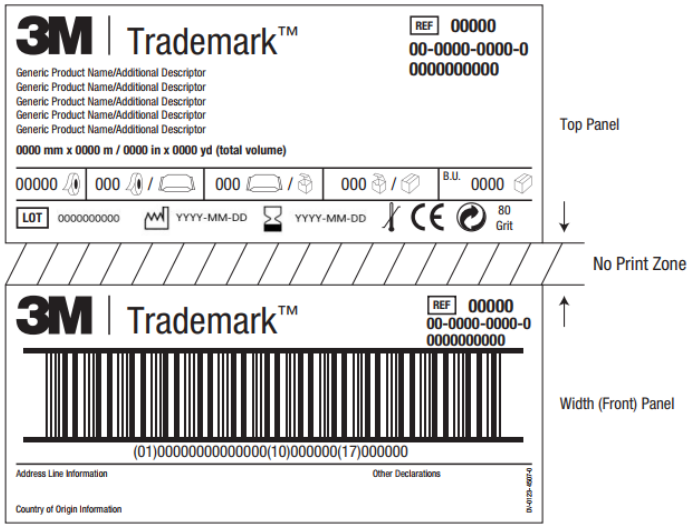
Dual Panel Layout (Shallow Depth Shipping Containers)

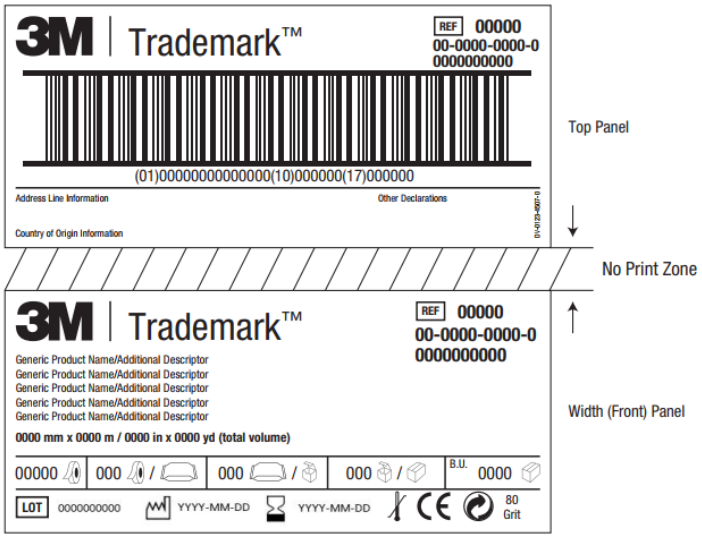
Application: Used when labeling shallow depth shipping containers.

Notes:

- Positioning of information on end and length panel may vary. For referencing purposes, multiple layout examples have been included in this policy to illustrate these variations.
- When developing labels that will be applied to multiple panels of a shipping container, a "no print zone" will need to exist. The specific sizing of the "no print zone", however, will be dependent on print process (i.e.: direct print, preprinted label, or "On-Demand" label) and related application requirements. **Note**: When determining required "no-print zone", ensure that vertical bars of the barcode symbol are at least 19,05 mm (0.75 inches) away from the vertical edge of the panel so that proper quiet zone tolerances/spacing is maintained.
- When utilizing dual panel layouts, default is to place barcode data on width (front) panel to enable accessibility of barcode data when products are stacked on pallets or placed in racks. In other situations, barcode data is required to be placed on length (side) panel to enable automated scanning of barcode data based on how the shipping container is placed on a conveyor system.







Technical Appendix H: Language and Country Codes

Language Code Listing

Language	Language Code
Abkhazian	ab
Afar	aa
Afrikaans	af
Akan	ak
Albanian	sq
Amharic	am
Arabic	ar
Aragonese	an
Armenian	hy
Assamese	as
Avaric	av
Avestan	ae
Aymara	ay
Azerbaijani	az
Bambara	bm
Bashkir	ba
Basque	eu
Belarusian	be
Bengali	bn
Bislama	bi
Bosnian	bs
Breton	br
Bulgarian	bg
Burmese	my
Catalan; Valencian	ca
Central Khmer	km
Chamorro	ch
Chechen	ce
Chichewa; Chewa; Nyanja	ny
Chinese	zh
Church Slavic; Old Slavonic; Church Slavonic; Old Bulgarian; Old Church Slavonic	cu

Language	Language Code
Chuvash	cv
Cornish	kw
Corsican	co
Cree	cr
Croatian	hr
Czech	cs
Danish	da
Divehi; Dhivehi; Maldivian	dv
Dutch (Flemish)	nl
Dzongkha	dz
English	en
Esperanto	eo
Estonian	et
Ewe	ee
Faroese	fo
Fijian	fj
Finnish	fi
French	fr
Fulah	ff
Gaelic; Scottish Gaelic	gd
Galician	gl
Ganda	lg
Georgian	ka
German	de
Greek, Modern (1453-)	el
Guarani	gn
Gujarati	gu
Haitian; Haitian Creole	ht
Hausa	ha
Hebrew	he
Herero	hz
Hindi	hi

Language	Language Code
Hiri Motu	ho
Hungarian	hu
Icelandic	is
Ido	io
Igbo	ig
Indonesian	id
Interlingua (International Auxiliary Language Association)	ia
Interlingue; Occidental	ie
Inuktitut	iu
Inupiaq	ik
Irish	ga
Italian	it
Japanese	ja
Javanese	jv
Kalaallisut; Greenlandic	kl
Kannada	kn
Kanuri	kr
Kashmiri	ks
Kazakh	kk
Kikuyu; Gikuyu	ki
Kinyarwanda	rw
Kirghiz; Kyrgyz	ky
Komi	kv
Kongo	kg
Korean	ko
Kuanyama; Kwanyama	kj
Kurdish	ku
Lao	lo
Latin	la
Latvian	lv

Language	Language Code
Limburgan; Limburger; Limburgish	li
Lingala	ln
Lithuanian	lt
Luba-Katanga	lu
Luxembourgish; Letzeburgesch	lb
Macedonian	mk
Malagasy	mg
Malay	ms
Malayalam	ml
Maltese	mt
Manx	gv
Maori	mi
Marathi	mr
Marshallese	mh
Mongolian	mn
Nauru	na
Navajo; Navaho	nv
North Ndebele	nd
Ndonga	ng
Nepali	ne
Northern Sami	se
Norwegian	no
Norwegian Bokmål	nb
Norwegian Nynorsk	nn
Occitan	oc
Ojibwa	oj
Oriya	or
Oromo	om
Ossetian; Ossetic	os
Pali	pi

Language	Language Code
Panjabi; Punjabi	pa
Persian	fa
Polish	pl
Portuguese	pt
Pushto; Pashto	ps
Quechua	qu
Romanian; Moldavian; Moldovan	ro
Romansh	rm
Rundi	rn
Russian	ru
Samoan	sm
Sango	sg
Sanskrit	sa
Sardinian	sc
Serbian	sr
Shona	sn
Sichuan Yi; Nuosu	ii
Sindhi	sd
Sinhala; Sinhalese	si
Slovak	sk
Slovenian	sl
Somali	so
South Ndebele	nr
Southern Sotho	st
Spanish; Castilian	es
Sundanese	su
Swahili	sw
Swati	ss
Swedish	sv
Tagalog	tl
Tahitian	ty

Language	Language Code
Tajik	tg
Tamil	ta
Tatar	tt
Telugu	te
Thai	th
Tibetan	bo
Tigrinya	ti
Tonga (Tonga Islands)	to
Tsonga	ts
Tswana	tn
Turkish	tr
Turkmen	tk
Twi	tw
Uighur; Uyghur	ug
Ukrainian	uk
Urdu	ur
Uzbek	uz
Venda	ve
Vietnamese	vi
Volapük	vo
Walloon	wa
Welsh	cy
Western Frisian	fy
Wolof	wo
Xhosa	xh
Yiddish	yi
Yoruba	yo
Zhuang; Chuang	za
Zulu	zu

Country Code Listing

Country	Country Code
Afghanistan	AF
Aland Islands	AX
Albania	AL
Algeria	DZ
American Samoa	AS
Andorra	AD
Angola	AO
Anguilla	AI
Antarctica	AQ
Antigua and Barbuda	AG
Argentina	AR
Armenia	AM
Aruba	AW
Australia	AU
Austria	AT
Azerbaijan	AZ
Bahamas	BS
Bahrain	BH
Bangladesh	BD
Barbados	BB
Belarus	BY
Belgium	BE
Belize	BZ
Benin	BJ
Bermuda	BM
Bhutan	BT
Bolivia	BO
Bonaire, Sint Eustatius and Saba	BQ
Bosnia and Herzegovina	BA
Botswana	BW
Bouvet Island	BV
Brazil	BR
British Indian Ocean Territory	IO
Brunei Darussalam	BN
Bulgaria	BG
Burkina Faso	BF
Burundi	BI
Cabo Verde	CV
Cambodia	KH
Cameroon	CM

Country	Country Code
Canada	CA
Cayman Islands	KY
Central African Republic	CF
Chad	TD
Chile	CL
China	CN
Christmas Island	CX
Cocos (Keeling) Islands	CC
Colombia	CO
Comoros	KM
Congo	CG
Congo, Democratic Republic of	CD
Cook Islands	CK
Costa Rica	CR
Cote d'Ivoire	CI
Croatia	HR
Cuba	CU
Curaçao	CW
Cyprus	CY
Czechia	CZ
Denmark	DK
Djibouti	DJ
Dominica	DM
Dominican Republic	DO
Ecuador	EC
Egypt	EG
El Salvador	SV
Equatorial Guinea	GQ
Eritrea	ER
Estonia	EE
Eswatini	SZ
Ethiopia	ET
Falkland Islands (Malvinas)	FK
Faroe Islnds	FO
Fiji	FJ
Finland	FI
France	FR
French Guiana	GF

Country	Country Code
French Polynesia	PF
French Southern Territories	TF
Gabon	GA
Gambia	GM
Georgia	GE
Germany	DE
Ghana	GH
Gibraltar	GI
Greece	GR
Greenland	GL
Grenada	GD
Guadeloupe	GP
Guam	GU
Guatemala	GT
Guernsey	GG
Guinea	GN
Guinea-Bissau	GW
Guyana	GY
Haiti	HT
Heard Island and McDonald Islands	HM
Holy See	VA
Honduras	HN
Hong Kong	HK
Hungary	HU
Iceland	IS
India	IN
Indonesia	ID
Iran (Islamic Republic of)	IR
Iraq	IQ
Ireland	IE
Isle of Man	IM
Israel	IL
Italy	IT
Jamaica	JM
Japan	JP
Jersey	JE
Jordan	JO
Kazakhstan	KZ
Kenya	KE
Kiribati	KI

Country	Country Code
Korea (Democratic People's Republic of)	KP
Korea, Republic of	KR
Kuwait	KW
Kyrgyzstan	KG
Lao People's Democratic Republic	LA
Latvia	LV
Lebanon	LB
Lesotho	LS
Liberia	LR
Libya	LY
Liechtenstein	LI
Lithuania	LT
Luxembourg	LU
Macao	MO
Madagascar	MG
Malawi	MW
Malaysia	MY
Maldives	MV
Mali	ML
Malta	MT
Marshall Islands	MH
Martinique	MQ
Mauritania	MR
Mauritius	MU
Mayotte	YT
Mexico	MX
Micronesia (Federated States of)	FM
Moldova, Republic of	MD
Monaco	MC
Mongolia	MN
Montenegro	ME
Montserrat	MS
Morocco	MA
Mozambique	MZ
Myanmar	MM
Namibia	NA
Nauru	NR
Nepal	NP
Netherlands	NL

Country	Country Code
New Caledonia	NC
New Zealand	NZ
Nicaragua	NI
Niger	NE
Nigeria	NG
Niue	NU
Norfolk Island	NF
North Macedonia	MK
Northern Mariana Islands	MP
Norway	NO
Oman	OM
Pakistan	PK
Palau	PW
Palestine, State of	PS
Panama	PA
Papua New Guinea	PG
Paraguay	PY
Peru	PE
Philippines	PH
Pitcairn	PN
Poland	PL
Portugal	PT
Puerto Rico	PR
Qatar	QA
Reunion	RE
Romania	RO
Russian Federation	RU
Rwanda	RW
Saint Barthélemy	BL
Saint Helena, Ascension and Tristan da Cunha	SH
Saint Kitts and Nevis	KN
Saint Lucia	LC
Saint Martin (French part)	MF
Saint Pierre and Miquelon	PM
Saint Vincent and the Grenadines	VC
Samoa	WS
San Marino	SM
Sao Tome and Principe	ST
Saudi Arabia	SA

Country	Country Code
Senegal	SN
Serbia	RS
Seychelles	SC
Sierra Leone	SL
Singapore	SG
Sint Maarten (Dutch Part)	SX
Slovakia	SK
Slovenia	SI
Solomon Islands	SB
Somalia	SO
South Africa	ZA
South Georgia and the South Sandwich Islands	GS
South Sudan	SS
Spain	ES
Sri Lanka	LK
Sudan	SD
Suriname	SR
Svalbard and Jan Mayen	SJ
Sweden	SE
Switzerland	CH
Syrian Arab Republic	SY
Taiwan, Province of China	TW
Tajikistan	TJ
Tanzania, United Republic of	TZ
Thailand	TH
Timor-Leste	TL
Togo	TG
Tokelau	TK
Tonga	TO
Trinidad and Tobago	TT
Tunisia	TN
Turkey	TR
Turkmenistan	TM
Turks and Caicos Islands	TC
Tuvalu	TV
Uganda	UG
Ukraine	UA
United Arab Emirates	AE

Country	Country Code
United Kingdom of Great Britain and Northern Ireland	GB
United States of America	US
United States Minor Outlying Islands	UM
Uruguay	UY
Uzbekistan	UZ

Country	Country Code
Vanuatu	VU
Venezuela (Bolivarian Republic of)	VE
Vietnam	VN
Virgin Islands (British)	VG
Virgin Islands (U.S.)	VI
Wallis and Futuna	WF

Country	Country Code
Western Sahara	EH
Yemen	YE
Zambia	ZM
Zimbabwe	ZW