

**OSRAM – AUTOMOTIVE DIVISION
STANDARD FOR MATERIAL LABELING
WITH PDF-417 BARCODE or Dot Matrix Barcode Types**

Version FY19.A

1 Scope

This standard applies to labels on the packaging of products shipped to OSRAM Sylvania - Automotive Division. All raw materials for the production of OSI's products must be labeled with a two-dimensional (2D) Bar Code. The PDF-417 or Dot Matrix types can be used.

The data contained within the bar code shall be OSI part number, OSI assigned Vendor/Supplier Number, Quantity, Date of Manufacture, and where applicable Revision Level. In addition, the data provided shall allow OSI to trace raw material consumption to a specific group (i.e. lot, batch, heat, or similar number grouping scheme). Additional data may be required for OSI to trace material issues (i.e. Machine, Frame, Cavity, etc...). Product specification data may also be required (i.e. Wall Diameter, Viscosity, etc...).

This document intends to provide general guidelines for how data is to be encoded within the bar code. It does not govern actual printing or placement of these labels. The quality of the labels shall be ANSI Grade "A" and shall be readable by all OSI equipment. The supplier shall work with OSI to ensure readability. The supplier should work with OSI to agree upon actual placement of the label.

2 Purpose

The purpose of this standard is to establish the bar code data content of labels as it applies to incoming products directly used as raw materials for OSI products.

3 Data Format and Content and Requirements

OSI has chosen to use PDF-417 or Dot Matrix bar code types and intends to conform to procedures and practices described in ANSI MH10.8.3 – "Two Dimensional Symbols for Use with Unit Loads and Transport Packages". In addition, OSI has chosen to encode data using Data Identifiers and intends to conform to procedures and practices described in ANSI MH10.8.2 – "Data Identifier and Application Identifier Standard".

3.1 Allowable Data Characters

OSI allows the following characters:

- Uppercase alpha characters
- Number 0 – 9
- Basic ASCII characters - Dash (-), Period (.), Dollar Sign (\$), Forward Slash (/), Plus (+), Percent (%), Underscore (_)
- Specific non-printable ASCII characters required by ANSI MH 10.8.3. These will be covered in the following sections.

3.2 Basic Data Format

Under ANSI MH 10.8.3, a two-level structure of enveloping is employed (See Figure 3-1). The Message Envelope is the outer most layer and defines the beginning and end of the data stream. Each Message Envelope can contain multiple Format Envelopes.

Each Format Envelope contains data formatted in one of several ANSI format standards including data formatted for the transportation industry, data formatted with EAN/UCC Application Identifiers and data formatted with Data Identifiers. While the structure allows for multiple format standards to be utilized within on data stream, OSI has chosen to only allow data formatted with Data Identifiers. Per ANSI MH 10.8.3, this is Format Indicator 06.

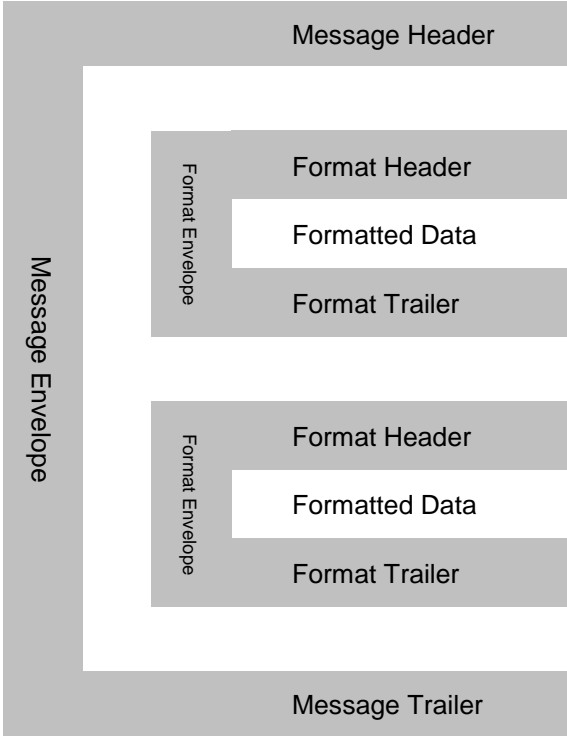


Figure 3-1

ANSI MH 10.8.3 Enveloping Structure

Per ANSI MH 10.8.3, Table 3-1 lists the non-printable ASCII characters used for format, field, and element and sub-element separators. Their usage will be covered in the next section.

Table 3-1

ANSI MH 10.8.3 ASCII Decimal and Hexadecimal Values for element separation

Separator	Code	Description
R _S	Decimal 30 or Hex 1E	Format Trailer Character
G _S	Decimal 29 or Hex 1D	Data Element Separator
E _{OT}	Decimal 04, Hex 04	End of Transmission

3.3 Data Element Syntax

3.3.1 Message Envelope

The Message Envelope shall consist of:

Message Header – Format Envelope(s) – Message Trailer

The Message Header shall be the first four characters and shall consist of $[> R_s$. The $[>$ is a Compliance Indicator and the R_s is a Format Trailer Character (See Table 3-1). The Message Trailer shall be the last character and shall be E_{OT} (See Table 3-1).

Therefore, the Message Envelope shall then consist of:

$[> R_s$ **Format Envelope** E_{OT}

3.3.2 Format Envelope

The Format Envelope shall consist of:

Format Header – Formatted Data Element(s) – Format Trailer

Per ANSI MH10.8.3 when Data Identifiers are used, the Format Header shall be **06** G_s . The Format Trailer shall be R_s .

Therefore, the Format Envelope shall then consist of:

06 G_s **Data Element(s)** R_s

3.3.3 Data Elements

Each Data Element shall be the appropriate FACT Data Identifier (ID) code (See Section 4) and followed by the Data Element Separator character G_s unless the data element is the last field in the data stream.

For example, to encode Part Number (**P**) Q19020083, Vendor (**V**) 750035 and Quantity (**Q**) 1200, the data string would look like:

PQ19020083 G_s **V750035** G_s **Q1200**

The entire data string would look like:

$[> R_s$ **06** G_s **PQ19020083** G_s **V750035** G_s **Q1200** $R_s E_{OT}$

4 OSI Mandated FACT Data Identifiers

The following table covers FACT Data Identifiers that shall be used by the OSI suppliers. The intent is to following ANSI MH10.8.2 standards.

Table 4-1

OSI Mandated FACT DAT Identifiers

ANSI 10.8.2 Category / Short Text	Data Identifier	ANSI MH10.8.2 Description with OSI Comments
Item Information		
Part Number	P	Part Number, assigned by Customer (OSI)
Supplier Part Number (OPTIONAL)	1P	Part Number, assigned by Supplier
Rev level	2P	Code assigned to specify the revision level of the part e.g., Engineering Change Level, revision or edition
Party To The Transaction		
Vendor #	V	Supplier Code Assigned by the Customer
Measurement		
Quantity	Q	Quantity, Number of Pieces or Amount (numeric only). NOTE: Unit of measure assumed Eaches unless mutually defined by Supplier and OSI.
	3Q	Unit of Measure, as defined by the two-character ANSI X12.3 Data Element Number 355 Unit of Measurement Code.
Short Description	DC	Short Description Of item.
Location Reference		
NOTE: For OSI, if country of origin is US, this data is assumed and not required		
County of Origin	4L	Country of Origin, two-character ISO 3166 country code. With agreement of trading partners and when the Country of Origin is mixed, Country Code "AA" shall be used.
Activity Reference		
Work Order (OPTIONAL)	W	Work Order / Production Order / Shop Order (Vendor assigned)
Transaction Reference Used in Trading Relationships		
Purchase Order (OPTIONAL)	K	Order Number assigned by Customer (OSI) to identify a Purchasing Transaction (e.g., purchase order number)

ANSI 10.8.2 Category / Short Text	Data Identifier	ANSI MH10.8.2 Description with OSI Comments
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Date

NOTE: For Date codes, Vendor may select the most appropriate code for their needs.

Manufacture/ Production Date	D	Format YYMMDD - Significance of Date mutually agreed upon by the trading partners. NOTE: For OSI, this code is for Production Date.
	1D	Format DDMMYY - Significance of Date mutually agreed upon by the trading partners. NOTE: For OSI, this code is for Production Date.
	9D	Date (Structure and significance mutually defined). Note for OSI, Production date where format is YYYYMMDD hh:mm where hh = 24 hour mm = minute.
	10D	Format YYWW
	2D	Format MMDDYY - Significance of Date mutually agreed upon by the trading partners. NOTE: For OSI, this code is for Production Date.
	5D...405	Format YYMMDD immediately followed by an AND X12.3 Data Element Number 374 Qualifier - 405 Production Date.
	6D...405	Format YYYYMMDD immediately followed by an AND X12.3 Data Element Number 374 Qualifier - 405 Production Date.
	16D	Production Date YYYYMMDD.
	17D	Production Date DDMMYYYY.
	18D	Production Date MMDDYYYY
Expiration date	5D...036	Format YYMMDD immediately followed by an AND X12.3 Data Element Number 374 Qualifier - 036 Expiration Date
	6D...036	Format YYYYMMDD immediately followed by an AND X12.3 Data Element Number 374 Qualifier - 036 Expiration Date
	14D	Expiration Date (YYYYMMDD)
	15D	Expiration Date (DDMMYYYY)

ANSI 10.8.2 Category Data
/ Short Text Identifier ANSI MH10.8.2 Description with OSI Comments

Traceability Number for an Entity

Serial # SXX Identification code assigned by the Supplier to a single entity (i.e. one box) where XX is a Traceability Code (see below).

Machine 10SXX Machine, Cell, or Tool ID Code where XX is a Machine Code (see below)

Traceability Number for Groups of Entities

Used to identify/trace a unique group of entities where the group shares a common origin (i.e. one production batch with multiple serialized boxes)

1TXX Traceability Number assigned by the Supplier to identify/trace a unique group of entities where XX is a unique identifier (see below).

When multiple levels are required, the following codes may be used.

30TXX First Level (Supplier Assigned) where XX is a unique identifier (see below).

31TXX First Level (Supplier Assigned) where XX is a unique identifier (see below).

32TXX Second Level (Supplier Assigned) where XX is a unique identifier

33TXX Third Level (Supplier Assigned) where XX is a unique identifier.

34TXX Fourth Level (Supplier Assigned) where XX is a unique identifier.

Level Example

1st Level (Resin Lot)			
2nd Level Mix Lot		2nd Level Mix Lot	
3rd Level Can Number	3rd Level Can Number	3rd Level Can Number	3rd Level Can Number

Traceability Codes

LN Lot Number

IL Inner Lot Number

ML Middle Lot Number

OL Outer Lot Number

BN Batch Number

SN Serial Number

CN Can Number

CI CIM ID

HN Heat Number

ANSI 10.8.2 Category / Short Text	Data Identifier	ANSI MH10.8.2 Description with OSI Comments
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	IH	Inner Heat Number
	MH	Middle Heat Number
	OH	Outer Heat Number
	BX	Box Number
	PI	Package Identification
	SP	Spool Number
	IS	Inner Spool
	OS	Outer Spool
	SM	Middle Spool
	SC	Schedule Number
	CR	Control Number
	PN	Pallet Number
	MS	Mother Spool
	TB	Tub Number
	WR	Wire Rod
	BD	Bulk ID
	SI	Inner Serial Number
	NT	Inner Tracer
	TA	Tracer
	CL	Child Spool
	PT	Product ID

Machine Codes

	FR	Frame
	CV	Cavity
	TL	Tool Station
	DI	Die
	MC	Machine
	PR	Press
	TN	Tank Number

Mutually Defined

	ZXX	Mutually Defined between the Customer and Supplier where XX is a unique identifier code
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Identifier codes

	BT	Base Type
	BI	Bin Number
	CC	Cat. Code
	CW	Coil Weight
	LT	Length

ANSI 10.8.2 Category / Short Text	Data Identifier	ANSI MH10.8.2 Description with OSI Comments
	PW	Pallet Weight
	SS	Surface Splits = Percent of wire by length that contains surfaces splits.
	TS	Tinsel strength
	IT	Inner Tinsel Strength
	OT	Outer Tinsel Strength
	TR	Trial #
	VS	Viscosity
	WD	Wall OD
	WO	Wire out Wt.
	WT	Wall Thickness
	GT	Glass Type
	CS	Case Number
	KI	Key ID
	EV	Elongation Value
	TI	Thixotropix Index

5 General Label Specifications

5.1 Label Placement

With this document, OSI is not mandating specific placement or layout of label. The supplier should combine the two-dimensional bar coding with current label(s).

5.2 Label Size

The dimension of the label should suit the dimensions of the package and may be dependent on the space needed for the required information. Bar code must be readable by OSI equipment.

5.3 Human Readable Interpretation

A human readable interpretation of the two-dimensional bar code shall be provided. The interpretation shall include the encoded data and its Data Identifier in parentheses.