

# NMFC New Density Rules for Steel Drums

**RIPA ANNUAL CONFERENCE**

**WESTIN LaPALOMA RESORT**

**TUCSON, AZ**

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# Definitions

- Density is the pounds per cubic foot. The formula is “weight/((L x W x H)/1728)
- Class - Freight Class is the category of your freight defined by the National Motor Freight Traffic Association. (NMFTA) There are 18 freight classes ranging from class 50 (the least expensive) to class 500 (most expensive)

# Definitions continued

- FAK – Freight all kinds is a Shipping industry term for a carrier's tariff classification for various kinds of goods that are pooled and shipped together at one freight rate.
- Discount – The percentage your freight charge is reduced from the published tariff.

# Steel Drums – Old NMFC Rules

## Section 52800

**52755** Barrels, Drums or Kegs, NOI, shipping, see Note, item 52838;  
Boxes, NOI;  
Cans, shop (Shop Kegs or Shop Drums);  
Cans, NOI, including Jacketed Cans, see Note, item 52834;  
Drums, Kegs or Pails, white lead or putty;  
Pails (Buckets), NOI, not enameled;

<b>52800</b>	<b>Liquid capacity exceeding 15 gallons:</b>	
<b>Sub 1</b>	<b>Sides made wholly of 16 gauge or thicker sheet</b>	<b>92.5</b>
<b>Sub 2</b>	<b>Sides in thinnest part not thinner than 19 nor thicker than 17 gauge:</b>	
<b>Sub3</b>	<b>Not nested</b>	<b>125</b>
<b>Sub 4</b>	<b>Nested, in packages; loose when shipments weigh 10,000 pounds or more</b>	<b>92.5</b>
<b>Sub 5</b>	<b>Sides made wholly or partly of 20 gauge or thinner sheet:</b>	
<b>Sub 6</b>	<b>Not nested</b>	<b>200</b>
<b>Sub 7</b>	<b>Nested, in packages; loose when shipments weigh 10,000 pounds or more</b>	<b>125</b>

# Steel Drums – Old NMFC Rules

## Section 52800

- Applies to steel drums larger than 15 gallons
- If sides are 16 gauge or thicker – Class 92.5
- If sides are between 17 and 19 gauge – Class 125
- If sides are 20 gauge or thinner – Class 200
- Most RIPA members ship 55 gallon steel open head drums at Class 92.5
- Most 55 gallon steel tight head drums would be Class 200

# Steel Drums – New NMFC Rule Section 174610

Item	Articles	Class
174610	Containers, viz.: Barrels, Drums or Kegs, NOI, shipping, see Note, item 174611 Boxes, NOI, Cans, NOI, see Note, item 174612 Pails or Buckets, NOI; In packages, see Note, item 174613, subject to Items 170 and 171 and having a density in pounds per cubic foot of:	
Sub 1	Less than 1	400
Sub2	1 but less than 2	300
Sub3	2 but less than 4	250
Sub4	4 but less than 6	150
Sub5	6 but less than 8	125
Sub6	8 but less than 10	100
Sub7	10 but less than 12	92.5
Sub8	12 but less than 15	85
Sub9	15 but less than 22.5	70
Sub10	22.5 but less than 30	65
Sub11	30 or greater	60

174611 NOTE- Also applies when containers are equipped with plastic inserts or liners.

174612 NOTE-Also applies when one or both ends are made of aluminum.

174613 NOTE-Barrels, drums or kegs having a rated (marked) capacity of 35 gallons or greater may be shipped loose.

# Steel Drums – New NMFC Rule Section 174610

- Replaces thickness with density (pounds per cubic foot) to determine class.
- Thickness was easier to determine because many drums had thickness marks on the bottom.
- Creates 11 classes based on density.
- Density is determined by dimension and weight.
- Converted or rebuilt drums may have different heights than new drums.

# Steel Drums – New NMFC Rule Section 174610

- Drum class can differ based on whether it is shipped loose or palletized.
- Most tight head steel drums are thinner than UN Marked Open Head Steel Drums and may ship at a higher class.
- Converted Open Heads may ship at a different class than UN Marked Open Heads.
- Also applies when the drum has a plastic insert or liner.
- Drums larger than 35 gallons may be shipped loose.

# Density Calculation UN Marked Open Head Steel Drum

## UN Marked Open Head Steel Drums without pallets

Average Weight	45lbs
Average Height	34.5inches
Average Width (Diameter)	23.5inches
Average Length (Diameter)	23.5inches

### Applying Formula

Cubic Inches	$19052.63 \text{ Length} \times \text{Width} \times \text{Height}$
Cubic Feet	$11.03 \text{ Cubic Inches} / 1728$
Density is	$4.08 \text{ Weight} / \text{Cubic Feet}$

**CLASS 150**

# Density Calculation UN Marked Open Head with Pallets

## UN Marked Open Head Steel Drums with pallets

Average Weight of 4 drums with pallet	249.76 lbs
Average Height with pallet	39.81 inches
Average Width of pallet	44 inches
Average Length of pallet	44 inches

Applying Formula

Cubic Inches  $77072.16 \text{ Length} \times \text{Width} \times \text{Height}$

Cubic Feet  $44.60 \text{ Cubic Inches} / 1728$

Density is  $5.60 \text{ Weight} / \text{Cubic Feet}$

**CLASS 150**

# Density Calculation UN Marked Tight Head Steel Drum

## UN Marked Tight Head Steel Drums without pallets

Average Weight	40lbs
Average Height	35.25inches
Average Width (Diameter)	23inches
Average Length (Diameter)	23inches

### Applying Formula

Cubic Inches	$18647.25 \text{ Length} \times \text{Width} \times \text{Height}$
Cubic Feet	$10.79 \text{ Cubic Inches} / 1728$
Density is	$3.71 \text{ Weight} / \text{Cubic Feet}$

**Class 250**

# Density Calculation UN Marked Tight Head Steel Drum with Pallets

Average Weight 4 drums with pallet	202 lbs
Average Height with pallet	39.75 inches
Average Width of pallet	44 inches
Average Length of pallet	44 inches

Applying Formula

Cubic Inches	$76956 \text{ Length} \times \text{Width} \times \text{Height}$
Cubic Feet	$44.53 \text{ Cubic Inches} / 1728$
Density is	$4.54 \text{ Weight} / \text{Cubic Feet}$

**Class 150**

# Differences between Old and New NMFC Provision

- Old Rules – UN Marked Open Head was Class 92.5
- New rules – UN Marked Open Head is Class 150 with or without pallets.
- Converted Open Head may be Class 250 depending on height and weight. May drop to Class 150 if on pallets.

# Differences between Old and New NMFC Provision

- Old Rule – UN Marked Tight Head was Class 200 with or without pallets.
- New Rule – UN Marked Tight Head is Class 250 without pallets. Drops to Class 150 if palletized.

# Recommendations

- Negotiate FAK with your freight carriers.
- Try to have lower specific classes apply by drum type.
- Negotiate a discount from the published rates.
- Try to ship on customers carrier, freight collect.

# Questions or Comments

