Disclaimer: This guidance does not replace any regulation and is not considered training.

The carrier can be more restrictive than the regulation; therefore, we recommend contacting the carrier before shipping Hazardous Materials.

This document is for general guidance only and does not create any legally-enforceable rights or obligations.
How to use this guide:

1. First – obtain a Safety Data Sheet and check Section 14 for United Nations (UN) Number.
2. Look up the UN number in the 49 CFR 172.101 table or ICAO-TI Table 1-3.
3. Scroll to page #3 of this guide and click on the icon corresponding to how you plan to ship your hazardous materials, i.e., limited quantities, excepted quantities, cargo, or passenger aircraft.
4. Click on Maximum authorized net capacity of each inner packaging from column 9a (passenger aircraft) or 9b (cargo aircraft) of the 101 Table or column 10/11 of ICAO-TI, Table 1-3.
5. Lastly - you will be directed to the packaging authorization and packaging demonstration.

*Note: Some packages will need to include a hazardous substance marking per Table 1 to Appendix A—Hazardous Substances Other Than Radionuclides.
Step 1: Select how you plan to ship the item, i.e., Passenger Aircraft, Cargo Aircraft, as a limited quantity, or as an excepted quantity.
### Passenger Aircraft

**Step 2:** Select the maximum net quantity per package from Column 9a of the 172.101 table.

<table>
<thead>
<tr>
<th>Maximum net quantity per package from Column 9a of the §172.101 table:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not greater than 0.5L</td>
</tr>
<tr>
<td>Greater than 0.5L, not greater than 1L</td>
</tr>
<tr>
<td>Greater than 1L, not greater than 5L</td>
</tr>
<tr>
<td>Greater than 5L, not greater than 60L</td>
</tr>
<tr>
<td>Greater than 60L, not greater than 220L</td>
</tr>
<tr>
<td>Greater than 220L</td>
</tr>
</tbody>
</table>
**Maximum authorized net capacity of each inner packaging**

<table>
<thead>
<tr>
<th>Glass, earthenware or fiber inner packagings</th>
<th>Metal or plastic inner packagings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5L</td>
<td>0.5L</td>
</tr>
</tbody>
</table>

**Label(s)**

*Check for subsidiary labels
Column (6) of §172.101, Hazardous Materials Table.

**Markings: UN & Orientation Arrows (two opposing sides)**

*Inner packages >120 mL (4 fluid oz.)

![Diagram showing UN code, packing group, manufacturer's information, and orientation arrows]

*if applicable
UN ID number, Proper Shipping Name, Technical Name, and Consignee / consignor name and address.

UN 4GV/Y13/S/2020/USA/+FAA

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.
<table>
<thead>
<tr>
<th>Maximum authorized net capacity of each inner packaging*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Glass, earthenware or fiber inner packagings</strong></td>
</tr>
<tr>
<td>0.5L</td>
</tr>
<tr>
<td><strong>Metal or plastic inner packagings</strong></td>
</tr>
<tr>
<td>1L</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Label(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Check for subsidiary labels Column (6) of §172.101, Hazardous Materials Table.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Markings</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Inner packages &gt;120 mL (4 fluid oz.)</td>
</tr>
</tbody>
</table>

*If applicable*
PGI Flammable Liquids:

To: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024
From: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

UN1987, Alcohols, n.o.s.

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.
### Maximum authorized net capacity of each inner packaging

<table>
<thead>
<tr>
<th>Glass, earthenware or fiber inner packagings</th>
<th>Metal or plastic inner packagings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1L</td>
<td>5L</td>
</tr>
</tbody>
</table>

#### Label

*Check for subsidiary labels Column (6) of §172.101, Hazardous Materials Table.

- Flammable Liquid

#### Markings

*Inner packages >120 mL (4 fluid oz.)*

- UN Code for Fiberboard Box (4G) and Variable Inner-containter material and configuration (V)
- Solids or Inner Packagings
- State/country authorizing mark
- Manufacturer certifying package
- Last two digits of the year of manufacture
- Packaging Group tested and max. gross mass (kg)
- United Nations Packaging Symbol

*if applicable*
PGII Flammable Liquids:

To: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024
From: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

UN1987, Alcohols, n.o.s.

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.
### Maximum authorized net capacity of each inner packaging

<table>
<thead>
<tr>
<th>Glass, earthenware or fiber inner packagings</th>
<th>Metal or plastic inner packagings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5L</td>
<td>10L</td>
</tr>
</tbody>
</table>

**Label**

*Check for subsidiary labels Column (6) of §172.101, Hazardous Materials Table.*

**Markings**

*Inner packages >120 mL (4 fluid oz.)*

- UN Code for Fiberboard Box (4G) and Variable inner-container material and configuration (V)
- Solids or inner packagings
- State/country authorizing mark
- Manufacturer certifying package

*if applicable*
PGII Flammable Liquids:

UN3272, Esters, n.o.s.

To: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

From: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

\[ \text{UN } 4GV/Y13/S/2020/USA/+FAA \]

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.
<table>
<thead>
<tr>
<th>Maximum authorized net capacity of each inner packaging</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass, earthenware or fiber inner packagings</td>
<td>Metal or plastic inner packagings</td>
</tr>
<tr>
<td>5L</td>
<td>25L</td>
</tr>
</tbody>
</table>

**Label**

*Check for subsidiary labels Column (6) of §172.101, Hazardous Materials Table.*

**Markings**

*Inner packages >120 mL (4 fluid oz.)

*if applicable*
PGIII Flammable Liquids:

To: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

From: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

UN1987, Alcohols, n.o.s.

4GV/Y13/S/2020/USA/+FAA

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.
<table>
<thead>
<tr>
<th>Maximum authorized net capacity of each inner packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Glass, earthenware or fiber inner packagings</strong></td>
</tr>
<tr>
<td>No Limit</td>
</tr>
<tr>
<td><strong>Metal or plastic inner packagings</strong></td>
</tr>
<tr>
<td>No Limit</td>
</tr>
</tbody>
</table>

**Label**

*Check for subsidiary labels Column (6) of §172.101, Hazardous Materials Table.*

**Markings**

*Inner packages >120 mL (4 fluid oz.)*

- UN Code for Fiberboard Box (4G) and Variable inner-container material and configuration (V)
- Solids or Inner Packagings
- State/country authorizing mark

- Manufacturer certifying package

- Last two digits of the year of manufacture
- Packaging Group tested and max gross mass (kg)

*if applicable*
PGIII Flammable Liquids:

UN3528, Engine, internal combustion, flammable liquid powered

To: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

From: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

4GV/Y13/S/2020/USA/+FAA

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.
## Cargo Aircraft

Maximum net quantity per package from Column 9b of the §172.101 table:

<table>
<thead>
<tr>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not greater than 2.5L</td>
</tr>
<tr>
<td>Greater than 2.5L, not greater than 30L</td>
</tr>
<tr>
<td>Greater than 30L, not greater than 60L</td>
</tr>
<tr>
<td>Greater than 60L, not greater than 220L</td>
</tr>
<tr>
<td>Greater than 220L</td>
</tr>
<tr>
<td>Glass, earthenware or fiber inner packagings</td>
</tr>
<tr>
<td>--------------------------------------------</td>
</tr>
<tr>
<td><strong>1L</strong></td>
</tr>
</tbody>
</table>

**Label**

*Check for subsidiary labels Column (6) of §172.101, Hazardous Materials Table.*

**Markings**

*Inner packages >120 mL (4 fluid oz.)*

*if applicable*
PGI Flammable Liquids with Subsidiary Hazard and Cargo Aircraft Only Label:

UN1263, Paint, flammable, corrosive

To: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

From: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.
### Maximum authorized net capacity of each inner packaging

<table>
<thead>
<tr>
<th>Glass, earthenware or fiber inner packagings</th>
<th>Metal or plastic inner packagings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5L</td>
<td>2.5L</td>
</tr>
</tbody>
</table>

**Label**

*Check for subsidiary labels
Column (6) of §172.101, Hazardous Materials Table.

**Markings**

*Inner packages >120 mL (4 fluid oz.)*

![UN Code for Fiberboard Box (4G) and Variable Inner-container material and configuration (V)](image)

- **4GV/X13/S/08/USA/+AQ2121**
  - United Nations Packaging Symbol
  - Packing Group tested and max. gross mass (kg)
  - Last two digits of the year of manufacture
  - Manufacturer certifying package

*if applicable*
To: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

From: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

UN1263, Paint

PGI Flammable Liquids Cargo Aircraft Only:

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.
<table>
<thead>
<tr>
<th>Glass, earthenware or fiber inner packagings</th>
<th>Metal or plastic inner packagings</th>
</tr>
</thead>
<tbody>
<tr>
<td>5L</td>
<td>10L</td>
</tr>
</tbody>
</table>

**Label**

*Check for subsidiary labels Column (6) of §172.101, Hazardous Materials Table.*

**Markings**

*Inner packages >120 mL (4 fluid oz.)*

UN Code for Fiberboard Box (4G) and Variable inner-container material and configuration (V)  
Solids or inner packagings State/country authorizing mark  
Packing Group tested and max. gross mass (kg) Last two digits of the year of manufacture  
United Nations Packaging Symbol Manufacturer certifying package

*if applicable*
To: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

From: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

UN1263, Paint, Class 3, PGII

4GV/Y13/S/2020/USA/+FAA

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.
<table>
<thead>
<tr>
<th>Glass, earthenware or fiber inner packagings</th>
<th>Metal or plastic inner packagings</th>
</tr>
</thead>
<tbody>
<tr>
<td>5L</td>
<td>25L</td>
</tr>
</tbody>
</table>

**Label**

*Check for subsidiary labels Column (6) of §172.101, Hazardous Materials Table.*

**Markings**

*Inner packages >120 mL (4 fluid oz.)*

*if applicable*
PGIII Flammable Liquids Cargo Aircraft Only:

To: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

From: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

UN1263, Paint

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.

4GV/Y13/S/2020/USA/+FAA
<table>
<thead>
<tr>
<th>Maximum authorized net capacity of each inner packaging</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass, earthenware or fiber inner packagings</td>
<td>Metal or plastic inner packagings</td>
</tr>
<tr>
<td>No Limit</td>
<td>No Limit</td>
</tr>
<tr>
<td>Label</td>
<td></td>
</tr>
<tr>
<td>*Check for subsidiary labels</td>
<td></td>
</tr>
<tr>
<td>Column (6) of §172.101, Hazardous Materials Table.</td>
<td></td>
</tr>
</tbody>
</table>

### Markings

*Inner packages >120 mL (4 fluid oz.)*

- **UN Code for Fibreboard Box (4G) and Variable inner-container material and configuration (V)**
- **Solids or inner Packagings**
- **State/country authorizing mark**
- **Manufacturer certifying package**

*if applicable*
UN3528, Engine, internal combustion, flammable liquid powered

To: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

From: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.
Limited Quantities
Select Packing Group:

<table>
<thead>
<tr>
<th>Packing Group</th>
<th>PG I</th>
<th>PG II</th>
<th>PG III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger</td>
<td>GREAT</td>
<td>MEDIUM</td>
<td>MINOR</td>
</tr>
<tr>
<td>Drop Test</td>
<td>1.8m</td>
<td>1.2m</td>
<td>.8m</td>
</tr>
<tr>
<td>Flashpoint/Boiling Point</td>
<td>FP NA BP≤35°C</td>
<td>FP&lt;23°C BP≥35°C</td>
<td>FP 23-60°C BP ≥35°C</td>
</tr>
</tbody>
</table>
Packing Group I Flammable Liquids Are Forbidden
<table>
<thead>
<tr>
<th>Glass, earthenware or fiber inner packagings</th>
<th>Metal or plastic inner packagings</th>
<th>authorized net quantity of each outer package</th>
<th>Total Gross Mass Per Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG II: 0.5L</td>
<td>PG II: 0.5L</td>
<td>PG II: 1L*</td>
<td>30 kg</td>
</tr>
</tbody>
</table>

*Maximum net quantity per outer package with corrosive subsidiary risk (e.g., UN2924, UN3286) is 0.5L. For Class 3 base materials as part of a Polyester resin kit (UN3269), see §173.165 of this part for additional requirements, as applicable. Inner packaging limit for UN3269 base material is 1.0 L. For Fuel cell cartridges containing flammable liquids (UN3473), see §173.230 of this part.

**Labels**

*Check for subsidiary

![Flammable Liquid](image)

**Markings**

![Orientation Arrows](image) ![Y Symbol](image)

Proper Shipping Name, Technical Name, and UN ID number Consignee / consignor name and address.

**Orientation arrows are not required on packages containing liquid hazardous materials in inner packagings of 120 mL (4 fluid oz.) or less when packed with sufficient absorption material between the inner and outer packagings to completely absorb the liquid contents.
PGII Flammable Liquids, Limited Quantity:

UN1263, Paint

To: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

From: Federal Aviation Administration (FAA)
470 L’Enfant Plaza East
Washington, DC 20024

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.
<table>
<thead>
<tr>
<th>Glass, earthenware or fiber inner packagings</th>
<th>Metal or plastic inner packagings</th>
<th>authorized net quantity of each outer package</th>
<th>Gross Mass Per Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG III: 2.5L*</td>
<td>PG III: 5.0L*</td>
<td>PG III: 10L*</td>
<td>30 kg</td>
</tr>
<tr>
<td>*Corrosive subsidiary risk (e.g., UN2924) or toxic (e.g., UN1992) is 1L</td>
<td>*Corrosive subsidiary risk (e.g., UN2924) or toxic (e.g., UN1992) is 1L</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Maximum net quantity per outer package with corrosive subsidiary risk (e.g., UN2924) is 1L and toxic subsidiary risk (e.g., UN1992) is 2L. For Class 3 base materials as part of a Polyester resin kit (UN3269), see §173.165 of this part for additional requirements, as applicable. Inner packaging limit for UN3269 base material is 1.0 L.

**Labels**

*Check for subsidiary.

**Markings**

Proper Shipping Name, Technical Name, and UN ID number Consignee / consignor name and address.

**Orientation arrows are not required on packages containing liquid hazardous materials in inner packagings of 120 mL (4 fluid oz.) or less when packed with sufficient absorption material between the inner and outer packagings to completely absorb the liquid contents."
To: Federal Aviation Administration (FAA)  
470 L’Enfant Plaza East  
Washington, DC 20024  
From: Federal Aviation Administration (FAA)  
470 L’Enfant Plaza East  
Washington, DC 20024

UN1263, Paint, Class 3, PGIII

PGIII Flammable Liquids, Limited Quantity:

Required Text Markings: UN ID number, Proper Shipping Name, Technical Name, and Consignee/Consignor Name and Address.
## Excepted Quantities

<table>
<thead>
<tr>
<th>Packing Group</th>
<th>Inner packaging limits</th>
<th>authorized net quantity of each outer package (liquids)</th>
<th>authorized net quantity of each outer package (solids)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing Group I</td>
<td>30 g (1 ounce) or 30 mL (1 ounce) for solids or liquids</td>
<td>300 mL (0.08 gallons)</td>
<td>300 g (0.66 pounds)</td>
</tr>
<tr>
<td>Packing Group II</td>
<td></td>
<td>500 mL (0.1 gallons)</td>
<td>500 g (1.1 pounds)</td>
</tr>
<tr>
<td>Packing Group III</td>
<td></td>
<td>1 L (0.2 gallons)</td>
<td>1 kg (2.2 pounds)</td>
</tr>
</tbody>
</table>

### Training

Each person who offers or transports excepted quantities of hazardous materials must know about the requirements of this section.

### Shipping Papers

For transport by air, a shipping paper is not required, except that, if a document such as an airwaybill accompanies a shipment, the document must include the statement “Dangerous Goods in Excepted Quantities” and indicate the number of packages.

### Marking

![Hazard class Consignor and consignee address]
Shipping paper not required if accompanied by a document, it must include “Dangerous Goods in Excepted Quantities” and indicate the number of packages.