Transportation of Dangerous Goods

TDG Bulletin
Ethanol and Gasoline Mixture – Classification and Emergency Response

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This bulletin explains the requirements for the classification of ethanol and gasoline mixtures, as well as emergency response measures in the case of an incident. It does not change, create, amend or suggest deviations to the Transportation of Dangerous Goods (TDG) Regulations. For specific details, consult Part 2 of the TDG Regulations.

Ethanol and Gasoline Mixture

Transport Canada advises:

- **shippers and carriers** of dangerous goods of the shipping names and UN numbers that they should use in Canada for fuel mixtures of ethanol (or ethyl alcohol) and gasoline; and
- **emergency responders** on how to treat spills and fires involving these mixtures.

Classification

The chart below indicates how to classify ethanol and gasoline mixtures properly for transport.

<table>
<thead>
<tr>
<th>Ethanol Concentration</th>
<th>Shipping Name</th>
<th>UN Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% or less</td>
<td>Gasoline</td>
<td>UN1203</td>
</tr>
<tr>
<td>More than 10% and less than 100%</td>
<td>Ethanol and Gasoline mixture</td>
<td>UN3475</td>
</tr>
<tr>
<td>100%</td>
<td>Ethanol or Ethyl alcohol</td>
<td>UN1170</td>
</tr>
</tbody>
</table>

As per Section 2.3 of the Transportation of Dangerous Goods Regulations, the shipping name shown in column 2 of Schedule 1 (if applicable) **must** be used to identify dangerous goods in transport:

"If a name of dangerous goods is shown as a shipping name in column 2 of Schedule 1, that name must be used as the shipping name."

The shipping name in column 2 of Schedule 1 that most precisely describes the dangerous goods and that is most consistent with the class and the packing group determined by the criteria and tests must be selected as the shipping name.

As a result, you **must not** classify ethanol/gasoline mixtures as:

- UN1987, ALCOHOLS, N.O.S.;
- UN1993, FLAMMABLE LIQUIDS, N.O.S.; or
- NA1987, DENATURED ALCOHOL.

Mixtures containing more than 10% ethanol form a polar/water-miscible (capability of being mixed) flammable liquid that degrades the Aqueous Film Forming Foam
(AFFF) which is often used to put out gasoline fires. This is why it is very important to properly identify and classify these mixtures so that emergency responders know how to treat them appropriately in case of a spill or fire.

**Emergency Response**

You must treat fires involving mixtures containing more than 10% ethanol differently than gasoline only fires.

- For more information, refer to the Emergency Response Guidebook (ERG) (Guide 127 - Flammable Liquids; Polar and Water-Miscible);
- The International Association of Fire Chiefs (IAFC) recommends applying a fog stream of Alcohol-Resistant, Aqueous Film Forming Foam (AR-AFFF) on spills or fires of mixtures containing more than 10% ethanol.