



# UL fuel compatibility tool

## **Fueling stations and components**

Helping to meet EPA, state or authorities fuel compatibility requirements.

**Empowering Trust<sup>®</sup>**



# Guidance on using UL Listed fuel ratings

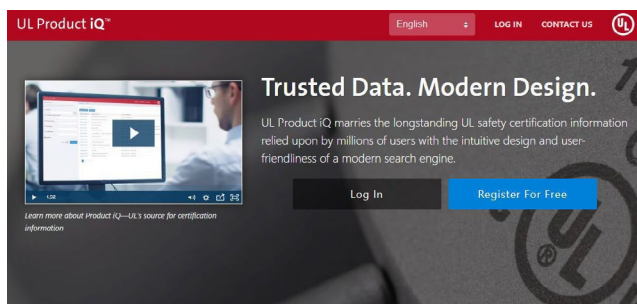
As regulations evolve and expand the demand for additional types of fuel, manufacturers and fueling stations will need to stay up-to-date on what requirements they need to comply with and how they can adapt to meet the shifting marketplace demand. Fuel stations will need to update their equipment for new biofuels, such as E15. Additionally, local code authorities will need to confirm the necessary fuel ratings for compatibility with EPA Office of Underground Storage Tanks (OUST) and state regulations.

UL provides information in order to assist fuel stations and local code authorities. Access to UL's Listing Category Control Numbers (CCNs) and individual UL Listings are now within the new UL Product iQ™ Database – a modern search engine powered by an intelligent algorithm that yields accurate results.

## Step 1 — Go to [productiq.ul.com](https://productiq.ul.com)

- For new users: select “Register for Free” and create a username and password to access the database (simple one-time step)
- For returning registered users: select “Log In” and enter your username and password to access the database

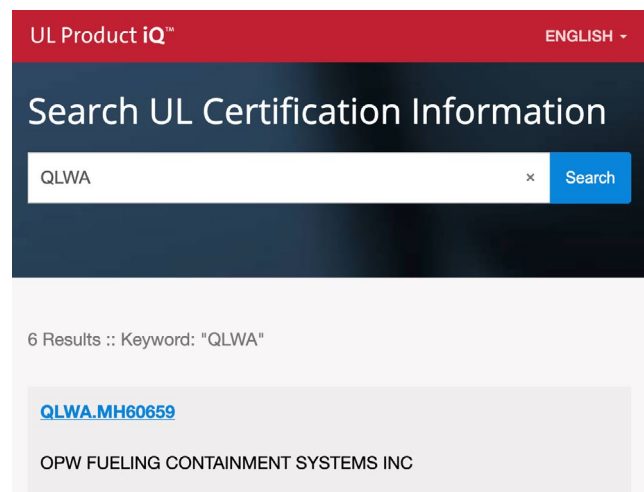
Navigation tutorial and other user aides to refine searches are available within Product iQ.



## Step 2 — Create a Search

- Either go to UST [Table 1](#) or Dispenser [Table 2A](#) and [Table 2B](#) and click on the CCN to get both the Guide Information Document and list of all individual Listees
- OR, Enter the UL CCN in the search bar. The UL File # (MH\_\_\_\_) can also be entered for specific Listings. Or advanced searches can also include manufacturer and model

The QLWA category is shown as an example.



### Step 3 — Click on either the Guide Info or Individual File Listings

#### Guide Info (Recommended for first time users)

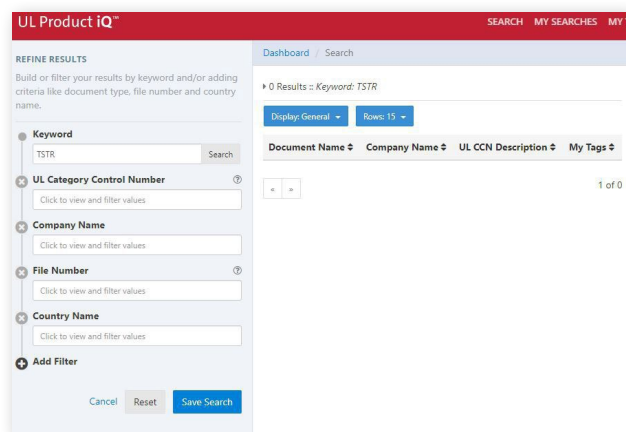
Provides the basics of what UST system product types and options are covered, the Standard, intended applications along with containment, fuel, location and other ratings, and how to identify these on Listed products (ex: QLWA.GuidelInfo)

#### Individual File Listing

Shows the document information (depending on the CCN selected, different product types, fuel ratings and series/models covered by the Listing) and the company information for the Listee (name and address) (ex: QLWA.MH12345).

Filters can be used to narrow searches for Listing CCNs with many Listees.

**Note:** [Table 3](#) allows you to search by fuel ratings for specific fuel blends.



The screenshot displays the UL Product iQ search interface. At the top, there's a navigation bar with 'SEARCH', 'MY SEARCHES', and 'MY T'. Below this, the 'REFINE RESULTS' section shows a search bar with 'TSTR' entered, resulting in '0 Results = Keyword: TSTR'. There are buttons for 'Display: General' and 'Rows: 15'. Below the search bar, there are filter options for 'Keyword', 'UL Category Control Number', 'Company Name', 'File Number', and 'Country Name', each with a 'Click to view and filter values' link. At the bottom, there are 'Cancel', 'Reset', and 'Save Search' buttons. The results table is empty, showing columns for 'Document Name', 'Company Name', 'UL CCN Description', and 'My Tags'.

## IMPORTANT

Although Product iQ is updated daily showing Listed manufacturers, product types, models and other pertinent information, **ONLY** products that bear the UL Mark are Listed. The UL Mark is used by the manufacturer under UL's Follow-Up Service Agreement to indicate that product is representative of the sample products evaluated for compliance by UL to the applicable Standard. Products without the UL Mark are not Listed, even though the same model may be found on their Listing Card in the UL Certification Directory, or UL Report.



# Table 1

## Type and rating summary of common underground fuel containment products in fueling systems

<p><b>UNDERGROUND TANKS – <a href="#">EGHX Product iQ</a></b></p> <p>3 UST Types with Different Old Fuel Ratings</p> <ul style="list-style-type: none"> <li>• <b>UL 58 Steel</b> – Primary or Secondary Containment Types for <a href="#">1. Flammable and Combustible Liquids (1)</a></li> <li>• <b>UL 1746 External Corrosion Protected Tanks</b> – 4 external system options (Cathodic, Composite, Jacketed or Coated) on any UL 58 Tank all have a <a href="#">1. Flammable and Combustible Liquids (1)</a> rating.</li> </ul> <p><b>UL 1316 Fiberglass</b> – (Up to Feb. 23, 2023) Primary or Secondary Containment Types with 3 progressive fuel ratings:</p> <ul style="list-style-type: none"> <li>• <a href="#">Petroleum Products Only (2)</a></li> <li>• <a href="#">Petroleum Products &amp; Gasohol (2)</a></li> <li>• <a href="#">Petroleum Products, Alcohols &amp; Alcohol/Gasoline Mixtures (2)</a></li> </ul> <p><b>UL/ULC 1316 Fiberglass</b> – Primary or Multi-Containment Types with 1 required fuel rating and other options:</p> <ul style="list-style-type: none"> <li>• <a href="#">Petroleum Product Oxygenates, Oxygenated Fuels E0-100, B0-100 AND #6 Oil max ? C(2)</a></li> <li>• <a href="#">Other optional flammable and/or combustible liquids evaluated by request, such as M100 (2)</a></li> </ul> <p><b>See EGAF for Internal Retrofit options for old tanks.</b></p>	<p><b>UNDERGROUND PIPING – <a href="#">QLXT Product iQ</a></b></p> <p>All Pipe Products have 4 Fuel Rating Options</p> <p><b>UL 971</b> – Covers nonmetallic (FRP, HDPE...) pipes.</p> <p><b>UL 971A</b> – Covers all metal and metal/plastic pipes.</p> <p>Both have almost identical performance test requirements for Pri, Sec and Coaxial pipe types, with 4 progressive fuel ratings that are different from the old and new versions:</p> <ul style="list-style-type: none"> <li>• <a href="#">Motor Vehicle Fuels (3)</a></li> <li>• <a href="#">High Blend Fuels (3)</a></li> <li>• <a href="#">Concentrated Fuels (3)</a></li> <li>• <a href="#">Aviation &amp; Marine Fuels (3)</a></li> </ul>
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# Table 1 — Continued

<p><b>CONTAINMENT SUMPS – <a href="#">QLWA Product iQ</a></b></p> <p>All Sump Products have New Fuel Ratings</p> <p><b>UL 2447</b> – Covers a variety of different sumps, fittings and accessories evaluated as assembled systems per each manufacturer’s instructions. Pri, Sec or Coaxial types all rated for <a href="#">Automotive Fuels (4)</a></p> <p><b>Sumps</b> – Dispenser, Tank, Transition and Fill, Vent or Fill/Vent (aka Spill Buckets) types.</p> <p><b>Fittings(*)</b> – Penetration, Termination, Internal and Test, Monitor or Test/Monitor types.</p> <p><b>Accessories</b> – Covers, Lids, Frames, Brackets and Chase Pipe.</p> <p><b>(*) Repair or Replacement rating options.</b></p>	<p><b>UST INTERNAL RETROFITS – <a href="#">EGAF Product iQ</a></b></p> <p><b>UL 1856</b> – Covers pre-engineered nonmetallic retrofit systems intended for field installation in buried UST (Steel or FRP). The 3 systems have different structural integrity, but are all rated for <a href="#">Automotive Fuels (4)</a></p> <p><b>Liner</b> – Bonded to tank wall, provides primary containment, but no added structural integrity.</p> <p><b>Upgrade</b> – Bonded to tank wall, provides Pri and Sec containment with monitoring and is co-structural.</p> <p><b>Structural</b> – Optional bond to tank wall, provides Pri and Sec containment with monitoring and is self-structural.</p>
<p><b>FLEXIBLE CONNECTORS – <a href="#">QLWV Product iQ</a></b></p> <p>3 Flex Pipe Types with New Fuel Ratings</p> <p><b>UL 2039</b> – Covers short (max 12 ft.) of highly flexible pipes for connections in limited spaces, or to mitigate frequent movement. Pri, Sec or Coaxial types with 3 location rating options all rated for <a href="#">Automotive Fuels (4)</a></p> <p><b>Underground</b> – Buried, but accessible without digging, such as within a chase pipe.</p> <p><b>Sump</b> – Within an enclosed, but accessible protective structure (below, above or at grade).</p> <p><b>Aboveground</b> – Installed on or above the earth with/without additional protection.</p>	<p><b>TANK ACCESSORIES – <a href="#">EGVV Product iQ</a></b></p> <p>Various Types with New Fuel Ratings</p> <p><b>UL 2583</b> – Covers devices attached to tanks or pipes that perform safety functions and/or are critical components for fuel containment. All accessory types in 2 classes are all rated for <a href="#">Automotive Fuels (4)</a></p> <p><b>Vapor Control Products</b> – Normal (P/V) vents, fill, vapor or ATG adapters and caps for adapters, monitors or sensors.</p> <p><b>Liquid Control Products</b> – Spill Containers, Flow Restrictors and Overfill Preventers. Note spill buckets are covered under UL 2447 for Sumps.</p> <p>UL Recognized materials (resins) are in EGVV2.</p>



# UL Fuel Ratings — Differences and Details

## 1. Flammable and Combustible Liquids

Oldest of the UL fuel ratings applicable to UL 58 steel tanks, and UL 1746 tanks constructed with a steel core. There is no compatibility testing required to achieve this rating, as steel has been traditionally accepted by many Standards Technical Committees as compatible with flammable and combustible liquids. However, in order to resist internal corrosion or MIC associated with water, salts, acids and other byproducts of fuel degradation (especially bio fuels), steel tanks should be checked regularly for water bottoms along with the fuel quality. As with any product, regular inspection and maintenance is required for continued performance. The Flammable and Combustible Liquid rating is very broad, and the general UL Guide coverage is:

- **Flammable Liquids** — Flammable Class IA, IB or IC liquids per NFPA 30, including fuels such as ASTM D4814 gasoline, ASTM D5797 or ASTM D5798 alcohol/gasoline blends, or similar alcohol/petroleum fuels; fuel components such as ethanol, methanol, toluene, iso-octane, heptane and similar alcohols, oxygenates or petroleum derivatives.
- **Combustible Liquids** — Combustible Class II, III, IIIA and IIIB liquids per NFPA 30, including fuels such as ASTM D3699 kerosene, ASTM D975 diesel, ASTM D396 heating, ASTM D2880 turbine and similar fuels with or without low levels of biodiesel; and oils such as lube, hydraulic and machine types. Waste oils with water or other unknown contaminants are not covered.

## 2. UL 1316 or UL/ULC 1316 FRP Tank Fuel Ratings

Another older group of UL fuel ratings, except based on long term compatibility testing using an accelerated aging method that comparatively measures the retention (percent change in as-received vs conditioned samples) of FRP Physical Properties. Details of the different sample conditions intended to simulate long term exposure to expected fluids and environments, and the % retention requirements to support the 3 progressive fuel ratings will be added at a later time.

The UL Guide for the 3 older UL 1316 Fuel Ratings can be used to support compatibility with many commercially available fuels and blend levels covered by 40CFR80, Regulation of Fuels and Fuel Additives, and compliant with referenced ASTM Fuel Specs or others having similar chemical makeup and characteristics:

- **Petroleum Products Only** — Hydrocarbons processed from crude oil and well gas including fuels, such as ASTM D4814 gasoline (without any alcohols or oxygenates), ASTM D975 diesel fuel (max B5), ASTM D396 heating oil (max B5), ASTM D3699 kerosene (K1 and K2) and similar high-petroleum-content fuels; and oils, such as lubricating, hydraulic, machine and similar working oils.
- **Petroleum Products and Gasohol (aka Unleaded Gasoline with Max 10% Ethanol)** — All Petroleum Products Only liquids, plus gasoline with low-blend alcohols, such as ASTM D4814 gasoline and alcohol blends (max E10), and similar low-blend oxygenated gasoline.
- **Petroleum Products, Alcohols and Alcohol/Gasoline Mixtures** — All Petroleum Products and Gasohol liquids, plus common-fuel-blend stocks and components, such as methanol, ethanol, ASTM D4806 denatured fuel ethanol, ASTM D5797 fuel methanol (nom M85), ASTM D5798 fuel ethanol (nom E85), and other fuel-blend combinations thereof. Gasoline/Iso-butanol blends up to iBu 16 are also covered under this rating.

Note when UL 1316 was written (2nd ed revised 1996), the PPO Test Fuels were intended to be those commonly available, which did not have any biofuel content at the time, compared with the ASTM Fuel Specs of today which permit various biodiesel blends (D396 & D975) and alcohol blends (D4814 & D5798). Therefore, the old “Gasoline” and “Fuel Oil” (aka diesel) test fuels or data can’t be used to support any new bio fuel blend ratings, except for those ≤ B5 & ≤ iBu 16.

The UL Guide for the new UL/ULC 1316 (UL1316 & ULC-S615 harmonization) can also be used to support compatibility with many commercially available fuels and blend levels covered by 40CFR Regulation of Fuels and Fuel Additives, and CCME 1326 Environmental Code of Practice for Aboveground and Underground Storage Tank Systems, and have only 1 required rating and options:

Petroleum Products, Oxygenates, Oxygenated Fuels E0-E100, B0-B100 and #6 Oil max ? C – The new rating includes the most commonly dispensed commercial fuels & blends in the older Standards, and identification of specific ASTM and CGSB Fuel Specifications are found in Appendix A of the new Standard. ? = the max #6 oil temperature it is rated for.

Other optional flammable & combustible liquid ratings may be requested for evaluation by the manufacturer, such as M0-M100.

**Important Info:** The older UL 1316 and ULC-S615 FRP UST Standards were replaced by the recently published UL/ ULC 1316 Bi-National Standard on Nov. 21, 2018, and all UL and ULC Listings will transition to the new requirements including revised long term compatibility tests and fuel ratings (see UL/ULC 1316) on or before Feb. 28, 2023. When the new UL Listing ratings are developed, the UL Guide will be updated.

### 3. UL 971 and UL 971A Underground Pipe Fuel Ratings

Last of the older group of UL fuel ratings also based on long term compatibility testing using an accelerated aging method that requires comparative measures (% change in as-received vs conditioned samples), except on both a) Pipe Characteristics and b) Physical Tests (PT) of assembled systems (pipe & fittings) at different times and temperatures. Details of the different sample conditions intended to simulate long-term exposure to expected fluids and environments, and the % retention requirements to support the 4 progressive fuel ratings will be added at a later time. The UL Guide for the 4 UL 971 & UL 971A Fuel Ratings can be used to support compatibility with many commercially available fuels, although ASTM Fuel Specs or blend levels are not specifically identified:compliant with referenced ASTM Fuel Specs or others having similar chemical makeup and characteristics:

- **Motor Vehicle Fuels** — Petroleum-based hydrocarbon fuels typically found in consumer dispensing stations, such as gasoline or diesel, including blended fuels with max 15% MTBE, 15% Methanol or 30% Ethanol.
- **Concentrated Fuels** — Motor vehicle and alternate unblended fuels for up to 100% concentrations of Toluene, Methanol and Ethanol.
- **High Blend Fuels** — Motor vehicle fuels with higher than normal gasoline blends with max 50% Methanol or 50% Ethanol.
- **Aviation & Marine Fuels** — Motor vehicle and specialty aviation or marine fuels for up to 100% kerosene or leaded gasoline.

Note when the above UL Underground Pipe Standards were revised (2004-2006), biodiesel was an emerging fuel but not commonly dispensed, and the Ref Fuel #2 used in testing did not contain any biodiesel can't be used to support any new biofuel blend ratings, except for those ≤ B5. Similarly, Premium Leaded Gas was intended to simulate pure petroleum based Avgas which did not contain any ethanol, so can't be used to support any alcohol-gasoline blends.

**Supplemental Info:** E10, E15 and E25 are covered by the basic MV Fuel rating. Nominal E85 is covered if Listed with the MV, CT & BH Fuel Ratings. Biodiesel blends up to B5 are covered by the basic MV Fuel rating per UL's Jan 7, 2009 Position Letter on Biodiesel Blends. Iso-butanol blends up to iBu 16 are covered by the basic MV Fuel rating per UL's Dec 9, 2013 Position Letter on Iso-butanol Blends.

## 4. Automotive Fuels

New fuel rating used in recently revised UL Standards (UL 2039, UL 2447, UL 2583, UL 1856, UL/ULC 1316, etc.) was intended to cover the most commonly used fuels & biofuel blends. Although the long term compatibility tests using the accelerated aging method is the same as older UL Standards, only 4 “aggressive” test fuels (from collaborative research) at one test time are required for a consistent basic fuel rating. However, appropriate deviations in samples, exposures, test times and test criteria between each UL Standard exist to address differences in the design and use factors of specific product and material types. Details of the different Standard requirements will be added at a later time.

The UL Guide for the Automotive Fuels Ratings can be used to support compatibility with many commercially available fuels and blend levels covered by 40CFR80, “Regulation of Fuels and Fuel Additives,” and compliant with referenced ASTM Fuel Specs or others having similar chemical makeup and characteristics:

**Automotive Fuels (\*)** — Fuels formulated per 40 CFR Part 80 “Regulation of Fuels and Fuel Additives” and meeting ASTM fuel specs and blend limits:

- D975 diesel with up to 5% biodiesel (B5)
- D7467 diesel with 6% - 20% biodiesel (B6-B20)
- D4814 gasoline with up to 10% ethanol (E10)
- D4814 and ASTM D5798 mid-range ethanol/gasoline blends (E11-E50)
- D5798 high-range ethanol/gasoline blends (E51-E83)
- Isobutanol Fuel Blends (max iBu16) of D4814 Gasoline (E0) and D7862 Butanol

(\*) An optional “and Similar (Fuels or Liquids)” may be added to cover fuel/liquid specifications of similar chemical makeup and characteristics, such as: D3699 kerosene, D396 fuel oil and similar ASTM mid-grade petroleum distillates with up to 20% biodiesel (B20) for turbine or marine applications. D910, D7719 & D1655 aviation gas & jet turbine fuels and similar MIL Spec fuels (JP 4, 5, 7, 8 & 10) for aircraft applications.





# Table 2A

## Type and rating summary of common fuel dispensing equipment in fueling systems

<p><b>FLAMMABLE &amp; COMBUSTIBLE LIQUID (FUEL) DISPENSING DEVICES – <a href="#">EWTV Product iQ</a></b></p> <p>Variety of completely assembled electrically powered fuel dispensers typically constructed from the components below, for ordinary or hazardous locations.</p> <p><b>UL Mark</b> Power-Operated Dispensing Devices for Flammable Liquids<sup>1</sup> w/wo for Use in Class I, Group D, Division (1 or 2) Hazardous Locations and additional Fuel Rating Options in each Standard:</p> <p><b>UL 87</b> – Covers Fuel Dispensers. Base Flammable Liquids<sup>1</sup> Rating Only</p> <p><b>UL 87A</b> – Similar to UL87 for High Blend Ethanol. Base UL87 + Rating Options: Gasoline<sup>2</sup> and E25<sup>6</sup>, E40<sup>7</sup> or E85<sup>8</sup></p> <p><b>UL 87B</b> – Similar to UL87 for High Blend Biodiesel. Base UL87 + Rating Options: Diesel Fuel<sup>3</sup> or B5<sup>9</sup>, B20<sup>10</sup> or B99.9/B100<sup>11</sup> See Note 3 for Fuel Oil.</p>	<p><b>EMERGENCY SHUTOFF (SHEAR) VALVES – <a href="#">EUCV Product iQ</a></b></p> <p>Various Non-Electric Emergency Valve Types all have a UL Mark – Emergency Shutoff Valve for Flammable Liquids<sup>1</sup> and Fuel Rating Options in each Standard:</p> <p><b>UL/ULC 842</b> – Covers Flammable Fluid Valves. Flammable Liquids<sup>1</sup> Rating Only.</p> <p><b>UL 842A</b> – Similar to UL842 for High Blend Ethanol. Base UL842 + Rating Options: Gasoline<sup>2</sup> and E25<sup>6</sup>, E40<sup>7</sup> or E85<sup>8</sup>.</p> <p><b>UL 842B</b> – Similar to UL842 for High Blend Ethanol. Base UL842 + Rating Options: Diesel Fuel<sup>3</sup> and/or Fuel Oil<sup>5</sup> w/wo B5<sup>9</sup>, B20<sup>10</sup> or B99.9/B100<sup>11</sup> and Kerosene<sup>4</sup>.</p>
<p><b>(FUEL) STRAINERS/FILTERS – <a href="#">VXYV Product iQ</a></b></p> <p>Various (Strainer/Filter) all have a UL Mark = Strainer for “X” where “X” equals Gasoline<sup>2</sup>, Diesel<sup>3</sup> and/or Kerosene<sup>4</sup> and Fuel Rating Options in each Standard:</p> <p><b>UL 331</b> – Covers Flam and Comb Fuel Strainers/Filters. Rated for Base “X” Fuels Only.</p> <p><b>UL 331A</b> – Similar to UL 331 for High Blend Ethanol. Base UL 331 + Rating Options: Gasoline<sup>2</sup> and E25<sup>6</sup> or E85<sup>8</sup> See Note 4 for E40.</p> <p><b>UL 331B</b> – Similar to UL 331 for High Blend Biodiesel. Base UL 331 + Rating Options: Diesel Fuel<sup>3</sup> and/or Fuel Oil<sup>5</sup> w/wo B5<sup>9</sup>, B20<sup>10</sup> or B99.9/B100<sup>11</sup> and Kerosene<sup>4</sup></p>	<p>Footnotes can be found on <a href="#">page 10</a>.</p> <div> <p><b>IMPORTANT</b></p> <p>Product iQ is the database for accessing UL Certification information. Sign up for a free account at <a href="#">productiQ.UL.com</a></p> </div>

# Table 2B

## Type and rating summary of common underground fuel containment products in fueling systems

<p><b>POWER OPERATED (FUEL) PUMPS – <a href="#">RCRX Product iQ</a></b></p> <p>Various Pump Types all have a UL Mark = *. Pump for Petroleum Products<sup>1</sup> and Fuel Rating Options in each Standard:</p> <p><b>UL 79</b> – Covers Flam &amp; Comb Fuel Dispenser Pumps. Base Petroleum Products<sup>1</sup></p> <p><b>UL 79A</b> – Similar to UL 79 for High Blend Ethanol. Base Petroleum Products<sup>1</sup> + Rating Options: Gasoline<sup>2</sup> and E25<sup>6</sup> or E85<sup>8</sup>.</p> <p><b>UL 79B</b> – Similar to UL79 for High Blend Biodiesel. Base Petroleum Products<sup>1</sup> Rating Options:</p> <p>Diesel Fuel<sup>3</sup> w/wo B5<sup>9</sup>, B20<sup>10</sup> or B99.9/B100<sup>11</sup> and Kerosene<sup>4</sup>.</p> <p><b>See Note A for Fuel Oil. See Note B for E40.</b></p>	<p><b>(FUEL) METERS – <a href="#">PLRZ Product iQ</a></b></p> <p>Various Meter Types all have a UL Mark = Meter for Flammable Liquids<sup>1</sup> and Fuel Rating Options in each Standard:</p> <p><b>UL 25</b> – Covers Flam &amp; Comb Fuel Meters. Base Flammable Liquids<sup>1</sup>.</p> <p><b>UL 25A</b> – Similar to UL 25 for High Blend Ethanol. Base Flammable Liquids<sup>1</sup> Rating Options: Gasoline<sup>2</sup> and E25<sup>6</sup>, E40<sup>7</sup> or E85<sup>8</sup>.</p> <p><b>UL 25B</b> – Similar to UL25 for High Blend Biodiesel. Base Flammable Liquids<sup>1</sup> Rating Options: Diesel Fuel<sup>3</sup> and/or Fuel Oil<sup>5</sup> w/wo B5<sup>9</sup>, B20<sup>10</sup> or B99.9/B100<sup>11</sup> and Kerosene<sup>4</sup>.</p>
<p><b>(FUEL) HOSE ASSEMBLIES – <a href="#">MVQJ Product iQ</a></b></p> <p>Various Fuel Hose Assembly Types all have a UL Mark = Flammable Liquid<sup>1</sup> Hose Assembly and Fuel Rating Options in each Standard:</p> <p><b>UL/ULC 330</b> – Covers Flam &amp; Comb Fuel Hose Assemblies Base Flammable Liquid<sup>1</sup></p> <p><b>UL 330A</b> – Similar to UL 330 for High Blend Ethanol. Base Flammable Liquid<sup>1</sup> Rating Options: Gasoline<sup>2</sup> and E25<sup>6</sup>, E40<sup>7</sup> or E85<sup>8</sup>.</p> <p><b>UL 330B</b> – Similar to UL 25 for High Blend Biodiesel. Base Flammable Liquids<sup>1</sup> Rating Options:</p> <p>Diesel Fuel<sup>3</sup> and/or Fuel Oil<sup>5</sup> w/wo B5<sup>9</sup>, B20<sup>10</sup> or B99.9/B100<sup>11</sup> and Kerosene<sup>4</sup>.</p>	<p><b>SWIVEL CONNECTORS – <a href="#">ERLV Product iQ</a></b></p> <p>Various Swivel Connector Types all have a UL Mark = Swivel Connector for Flammable Liquids<sup>1</sup> and Fuel Rating Options in each Standard:</p> <p><b>UL/ULC 567</b> – Covers Flam &amp; Comb Fuel E-Break Valves. Base Flammable Liquid<sup>1</sup> Only.</p> <p><b>UL 567A</b> – Similar to UL 567 for High Blend Ethanol. Base Flammable Liquid<sup>1</sup> Rating Options: Gasoline<sup>2</sup> and E25<sup>6</sup>, E40<sup>7</sup> or E85<sup>8</sup>.</p> <p><b>UL 567B</b> – Similar to UL 25 for High Blend Biodiesel. Base Flammable Liquids<sup>1</sup> Rating Options: Diesel Fuel<sup>3</sup> w/wo B5<sup>9</sup>, B20<sup>10</sup> or B99.9/B100<sup>11</sup></p> <p><b>See Note A for Fuel Oil.</b></p>

### **EMERGENCY BREAKAWAY VALVES – [ERBY Product iQ](#)**

Various Emergency Breakaway Valve Types all have a UL Mark = Emergency Breakaway Coupling for Flammable Liquids<sup>1</sup> and Fuel Rating Options in each Standard:

**UL/ULC 567** – Covers Flam & Comb Fuel E-Break Valves. Base Flammable Liquid<sup>1</sup> Only.

**UL 567A** – Similar to UL 567 for High Blend Ethanol. Base Flammable Liquid<sup>1</sup> Rating Options: Gasoline<sup>2</sup> and E25<sup>6</sup>, E40<sup>7</sup> or E85<sup>8</sup>.

**UL 567B** – Similar to UL 25 for High Blend Biodiesel. Base Flammable Liquids<sup>1</sup> Rating Options: Diesel Fuel<sup>3</sup> w/ wo B5<sup>9</sup>, B20<sup>10</sup> or B99.9/B100<sup>11</sup>.

**See Note A for Fuel Oil.**

### **(FUEL) HOSE NOZZLE VALVES – [ETAZ Product iQ](#)**

Various Fuel Hose Nozzle Valve Types all have a UL Mark = Hose Nozzle Valve for Flammable Liquids<sup>1</sup> and Fuel Rating Options in each Standard:

**UL/ULC 2586** – Covers Flam & Comb Fuel Hose Nozzle Valves. Base Flammable Liquid<sup>1</sup> Only.

**UL 2586A** – Similar to UL 2586 for High Blend Ethanol. Base Flammable Liquid<sup>1</sup> Rating Options: Gasoline<sup>2</sup> and E25<sup>6</sup>, E40<sup>7</sup> or E85<sup>8</sup>.

**UL 2586B** – Similar to UL 25 for High Blend Biodiesel. Base Flammable Liquids<sup>1</sup> Rating Options: Diesel Fuel<sup>3</sup> and/or Fuel Oil<sup>5</sup> w/wo B5<sup>9</sup>, B20<sup>10</sup> or B99.9/B100<sup>11</sup> and Kerosene<sup>4</sup>.

<sup>1</sup> Flammable Liquids or Petroleum Products = D4814 Gasoline max E10, D3669 Kerosene, D975 Diesel max B5 & D396 Fuel Oil max B5

<sup>2</sup> Gasoline = D4814 Gasoline max E10

<sup>3</sup> Diesel Fuel = D975 Diesel max B5

<sup>4</sup> Kerosene = D3669 Kerosene without any biofuel blends

<sup>5</sup> Fuel Oil = D396 Fuel Oil max B5

<sup>6</sup> E25 = Gasoline/Ethanol blends up to 25% (E0 - E25) evaluated using the CE25a test fuel. Max iBu16 is also covered per UL Iso-Butanol [position letter](#).

<sup>7</sup> E40 = Gasoline/Ethanol blends up to 40% (E0 - E40) evaluated using both the CE25a and CE40a test fuels, or;

<sup>8</sup> E85 = Gasoline/Ethanol blends up to 85% (E0 - E85) evaluated using both the CE25a and CE85a test fuels.

<sup>9</sup> B5 = Diesel Fuel or Fuel Oil/Biodiesel blends up to 5% (B0 - B5). Max B5 is also covered per UL Biodiesel [position letter](#).

<sup>10</sup> B20 = Diesel Fuel or Fuel Oil/Biodiesel blends up to 20% (B0 - B20) evaluated using the FB25a test fuel

<sup>11</sup> B99.9/B100 = Diesel Fuel or Fuel Oil/Biodiesel blends from 20% to 100% (B20 - B100) evaluated using both FB25a and B100a test fuels



## GENERAL NOTE:

The Fuel Dispenser and many Dispenser Components Standards and Certifications also cover Vapor Recovery products, Other flammable or combustible liquid ratings or Low Perm ratings if optionally evaluated for them. DEF is covered by separate C Standards and DEF product rating. See each Guide for details. Although all these UL Standards covers biofuel ratings at commonly dispensed blends, certification of either dispenser components or the complete dispenser may not be available at this time. Check the ratings on the Listed product for fuel blend coverage. There are no DFE or E100 ratings for Fuel Dispenser and Dispenser Component as there are currently no Standard requirements to cover them.

**Note A:** Although not a specific Standard marking item, Fuel Oil is covered by either the Flammable Liquids or Diesel Fuel ratings.

# Table 3

## UL fueling system product ratings for common fuel blends

### Flammable Fuels (Class I)

System Component	Gasoline	E10	E15, E25 & iBu16	E40	E85 or “Flex Fuel”	DFE or E100
UL 58 Steel Tank or UL 1746 CP Steel	<a href="#">Flammable and Combustible Liquids</a>					
UL 1316 FRP Tank	<a href="#">Petroleum Products Only or (*)</a>	<a href="#">Petroleum Products &amp; Gasohol or (*)</a>	<a href="#">Petroleum Products, Alcohols &amp; Alcohol/Gasoline Mixtures</a>			
UL/ULC 1316 FRP Tank	<a href="#">Petroleum Products, Oxygenates, Oxygenated Fuels E0-E100, B0-B100 and #6 Oil max -?- C</a>					
UL 1856 UST Internal Retrofit Systems	<a href="#">Automotive Fuels</a>					
UL 971 & UL 971A Underground Pipe	<a href="#">Aviation &amp; Marine Fuels</a>	<a href="#">Motor Vehicle Fuels or (*)</a>		<a href="#">High Blend Fuels or (*)</a>	<a href="#">High Blend Fuels</a>	
UL 2447 Sumps & Fittings	<a href="#">Automotive Fuels</a>					
UL 2039 Flex Connector Pipe	<a href="#">Automotive Fuels</a>					
UL 2583 Tank Accessories	<a href="#">Automotive Fuels</a>					
UL 87* Dispenser	<a href="#">Flammable Liquids or Gasoline</a>		<a href="#">E25, E40 or e85</a>	<a href="#">E40 or e85</a>	<a href="#">E85</a>	
UL 331* Fuel Filter	<a href="#">Flammable Liquids or Gasoline</a>		<a href="#">E25, E40 or e85</a>	<a href="#">E40 or e85</a>	<a href="#">E85</a>	
UL 79* Fuel Pump	<a href="#">Flammable Liquids or Gasoline</a>		<a href="#">E25, E40 or e85</a>	<a href="#">E85</a>	<a href="#">E85</a>	
UL 330* Hose Assembly	<a href="#">Flammable Liquids or Gasoline</a>		<a href="#">E25, E40 or e85</a>	<a href="#">E85</a>	<a href="#">E85</a>	
UL 25* Fuel Meters	<a href="#">Flammable Liquids or Gasoline</a>		<a href="#">E25, E40 or e85</a>	<a href="#">E40 or e85</a>	<a href="#">E85</a>	
UL 567* Swivel Connector	<a href="#">Flammable Liquids or Gasoline</a>		<a href="#">E25, E40 or e85</a>	<a href="#">E40 or e85</a>	<a href="#">E85</a>	
UL 567* Emergency Breakaway Valve	<a href="#">Flammable Liquids or Gasoline</a>		<a href="#">E25, E40 or e85</a>	<a href="#">E40 or e85</a>	<a href="#">E85</a>	
UL 2586* Hose Nozzle Valve	<a href="#">Flammable Liquids or Gasoline</a>		<a href="#">E25, E40 or e85</a>	<a href="#">E40 or e85</a>	<a href="#">E85</a>	

(\*) = Higher ratings above the minimum rating also covers the fuel blend. Refer to [Table 2A](#) and [Table 2B](#) for specific A and B suffix standards for E25, E40, E85 and B20, B99.9-B100 fuels.



**Combustible Fuels (Class II or IIII)**

System Component	Diesel Fuel/ Fuel Oil	B5	B20	B30, B40	B50, B60	B99-B100
UL 58 Steel Tank or UL 1746 CP Steel	<a href="#">Flammable and Combustible Liquids</a>					
UL 1316 FRP Tank	<a href="#">Any of the 3 Ratings</a>			<a href="#">Currently no coverage above B20—but new UL/ULC 1316 does</a>		
UL/ULC 1316 FRP Tank	<a href="#">Petroleum Products, Oxygenates, Oxygenated Fuels E0-E100, B0-B100 and #6 Oil max -?- C</a>					
UL 1856 UST Internal Retrofit Systems	<a href="#">Automotive Fuels</a>					
UL 971 & UL 971A Underground Pipe	<a href="#">Any of the 4 Ratings</a>					
UL/ULC 1316 FRP Tank						
UL 1856 UST Internal Retrofit Systems	<a href="#">Automotive Fuels</a>					
UL 971 & UL 971A Underground Pipe	<a href="#">Automotive Fuels</a>					
UL 2447 Sumps & Fittings	<a href="#">Automotive Fuels</a>					
UL 2039 Flex Connector Pipe	<a href="#">Flammable Liquids, Diesel Fuel or B5</a>		<a href="#">B20</a>			<a href="#">B99.9-B100</a>
UL 2583 Tank Accessories	<a href="#">Flammable Liquids, Diesel Fuel or B5</a>		<a href="#">B20</a>			<a href="#">B99.9-B100</a>
UL 87* Dispenser	<a href="#">Flammable Liquids, Diesel Fuel or B5</a>		<a href="#">B20</a>			<a href="#">B99.9-B100</a>
UL 842* Shear Valve	<a href="#">Flammable Liquids, Diesel Fuel or B5</a>		<a href="#">B20</a>			<a href="#">B99.9-B100</a>
UL 331* Fuel Filter	<a href="#">Flammable Liquids, Diesel Fuel or B5</a>		<a href="#">B20</a>			<a href="#">B99.9-B100</a>
UL 79* Fuel Pump	<a href="#">Flammable Liquids, Diesel Fuel or B5</a>		<a href="#">B20</a>			<a href="#">B99.9-B100</a>
UL 330* Hose Assembly	<a href="#">Flammable Liquids, Diesel Fuel or B5</a>		<a href="#">B20</a>			<a href="#">B99.9-B100</a>
UL 25* Fuel Meters	<a href="#">Flammable Liquids, Diesel Fuel or B5</a>		<a href="#">B20</a>			<a href="#">B99.9-B100</a>
UL 567* Swivel Connector	<a href="#">Flammable Liquids, Diesel Fuel or B5</a>		<a href="#">B20</a>			<a href="#">B99.9-B100</a>
UL 567* Emergency Breakaway Valve	<a href="#">Flammable Liquids, Diesel Fuel or B5</a>		<a href="#">B20</a>			<a href="#">B99.9-B100</a>
UL 2586* Hose Nozzle Valve	<a href="#">Flammable Liquids, Diesel Fuel or B5</a>		<a href="#">B20</a>			<a href="#">B99.9-B100</a>

# Glossary

## **CCNs**

Category Control Numbers

## **DEF**

Diesel Exhaust Fluid

## **DFE**

Denatured Fuel Ethanol

## **MIC**

Microbial Induced Corrosion

## **OUST**

Office of Underground Storage Tanks

## **Pri**

Primary

## **Sec**

Secondary

## **UL 25**

Standard for Meters for Flammable and Combustible Liquids and LP-GAS

## **UL 25A**

Standard for Meters for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 - E85)

## **UL 25B**

Meters for Diesel Fuel, Biodiesel Fuel, Diesel/Biodiesel Blends with Nominal Biodiesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil

## **UL 58**

Standard for Steel Underground Tanks for Flammable and Combustible Liquid

## **UL 79**

Standard for Power-Operated Pumps for Petroleum Dispensing Products

## **UL 79A**

Standard for Power-Operated Pumps for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 - E85)

## **UL 79B**

Standard for Power-Operated Pumps for Diesel Fuel, Biodiesel Fuel, Diesel/Biodiesel Blends with Nominal Biodiesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil

## **UL 87**

Standard for Power-Operated Dispensing Devices for Petroleum Products

## **UL 87A**

Standard for Power-Operated Dispensing Devices for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 - E85)

## **UL 87B**

Power-Operated Dispensing Devices for Diesel Fuel, Biodiesel Fuel, Diesel/Biodiesel Blends with Nominal Biodiesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil

## **UL/ULC 330**

Standard for Hose and Hose Assemblies for Dispensing Flammable Liquids

## **UL 330A**

Outline of Investigation for Hose and Hose Assemblies for Use With Dispensing Devices Dispensing Gasoline and Gasoline/Ethanol Blends With Nominal Ethanol Concentrations Up To 85 Percent (E0 - E85)

## **UL 330B**

Standard for Hose and Hose Assemblies for Use With Dispensing Devices Dispensing Diesel Fuel, Biodiesel Fuel, Diesel/Biodiesel Blends With Nominal Biodiesel Concentrations Up To 20 Percent (B20), Kerosene, and Fuel Oil

## **UL 331**

Standard for Strainers for Flammable Fluids and Anhydrous Ammonia

## **UL 331A**

Standard for Strainers for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 - E85)

## **UL 331B**

Strainers for Diesel Fuel, Biodiesel Fuel, Diesel/Biodiesel Blends with Nominal Biodiesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil

## **UL/ULC 567**

Standard for Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Petroleum Products and LP-Gas

## **UL 567A**

Standard for Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 - E85)

## **UL 567B**

Standard for Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Diesel Fuel, Biodiesel Fuel, Diesel/Biodiesel Blends with Nominal Biodiesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil

## **UL/ULC 842**

Standard for Valves for Flammable Fluids

## **UL 842A**

Standard for Valves for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 - E85)

**UL 842B**

Standard for Valves for Diesel Fuel, Biodiesel Fuel, Diesel/Biodiesel Blends with Nominal Biodiesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil

**UL 971**

Standard for Nonmetallic Underground Piping For Flammable Liquids

**UL 971A**

Outline of Investigation for Metallic Underground Fuel Pipe

**UL 1316**

Standard for Fibre Reinforced Underground Tanks for Flammable and Combustible Liquids

**UL/ULC 1316**

Standard for Fibre Reinforced Plastic Underground Tanks for Flammable and Combustible Liquids

**UL 1746**

Standard for External Corrosion Protection Systems For Steel Underground Storage Tanks

**UL 1856**

Outline of Investigation for Underground Fuel Tank Internal Retrofit Systems

**UL 2039**

Flexbile Connector Piping for Fuels

**UL 2447**

Outline of Investigation for Containment Sumps, Fittings and Accessories for Fuels

**UL 2583**

Outline of Investigation for Fuel Tank Accessories

**UL/ULC 2586**

Standard for Hose Nozzle Valves

**UL 2586A**

Standard for Hose Nozzle Valves for Gasoline and Gasoline/Ethanol Blends with Nominal Ethanol Concentrations up to 85 Percent (E0 - E85)

**UL 2586B**

Standard for Hose Nozzle Valves for Diesel Fuel, Biodiesel Fuel, Diesel/Biodiesel Blends with Nominal Biodiesel Concentrations up to 20 Percent (B20), Kerosene, and Fuel Oil



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