

## Tank Manufacturer Compatibility

Table C-3. Tank Manufacturer Compatibility with Biodiesel Blends	
Manufacturer	B100
<b>Fiberglass<sup>a</sup></b>	
Containment Solutions	✓
Owens Corning	✗
Xerxes	✓
<b>Steel<sup>b</sup></b>	
Acterra Group Inc.	✓
Caribbean Tank Technologies Inc.	✓
Eaton Sales & Service LLC	✓
General Industries	✓
Greer Steel, Inc.	✓
Hall Tank Co.	✓
Hamilton Tanks	✓
Highland Tank	✓
J.L. Houston Co.	✓
Kennedy Tank and Manufacturing Co., Inc.	✓
Lancaster Tanks and Steel Products	✓
Lannon Tank Corporation	✓
Mass Tank Sales Corp.	✓
Metal Products Company	✓
Mid-South Steel Products, Inc.	✓
Modern Welding Company	✓
Newberry Tanks & Equipment, LLC	✓
Plasteela	✓
Service Welding & Machine Company	✓
Southern Tank & Manufacturing Co., Inc.	✓
Stanwade Metal Products	✓
Talleres Industriales Potosinos, S.A. de C.V.	✓
Tanques Antillanos C. x A.	✓
Watco Tanks, Inc.	✓
We-Mac Manufacturing Company	✓

Letters stating compatibility:

a. PEI [pei.org/ust-component-compatibility-library](http://pei.org/ust-component-compatibility-library)

b. STI [steeltank.com/Publications/E85BioDieselandAlternativeFuels/ManufacturerStatementsofCompatibility/tabid/468/Default.aspx](http://steeltank.com/Publications/E85BioDieselandAlternativeFuels/ManufacturerStatementsofCompatibility/tabid/468/Default.aspx)

## Underground Equipment

Table C-4. Underground Equipment			
Company	Product	Model	Biodiesel Compatibility
Manufacturers introduce and discontinue models over time. If you do not see your equipment on this list please contact the manufacturer. Note, "X" in these lists can be substituted for any value.			
Federal code requires compatibility of this equipment with specific fuels. This is achieved through either third-party listing or a letter from the manufacturer stating compatibility. If a specific manufacturer or model is not in the list, please contact the manufacturer directly to determine compatibility. Compatibility letters are available at: <a href="http://pei.org/ust-component-compatibility-library">pei.org/ust-component-compatibility-library</a> .			
Bravo Systems	Fiberglass fittings	Series F, FF, FPE, FR, Retrofit-S, D-BLR-S, D-INR-S, FLX, FLX-INR, FPS, TBF	B100
Bravo Systems	Spill buckets	B3XX	B100
Bravo Systems	Tank Sumps & covers	B4XX	B100
Bravo Systems	Transition sumps	B5XX, B6XX, B7XX, B8XX	B100
Bravo Systems	Under dispenser containment sumps	B1XXX, 7XXX, B8XXX, B9XXX	B100
Brugg	Piping	FLEXWELL-HL, SECON-X, NITROFLEX, LPG	B100
Cimtek	Filter	200, 250, 260-10, 260-30, 260AHS, 260HS, 300-02, 300-10, 300-30, 300HS, 400-02, 400-10, 400-30, 400HS, 800-02, 800-10, 800-30, 800HS	B20
Cimtek	Filter	260BHG, 260BMG, 300BHA, 300BMG, 300MB, 400BHA, 400BMG, 400MB, 450-10, 450-30, 475XL-10, 475XL-30, 450HS-10, 450HS-30, 475XLHS-10, 475XLHS-30, 800BHA, 800BHG, 800BMG	B100
Franklin Fueling	Other UST equipment	Franklin has third-party certified equipment compatible with biodiesel blends. Contact manufacturer for specific part numbers.	
Franklin Fueling	Piping	Franklin has third-party certified equipment compatible with biodiesel blends. Contact manufacturer for specific part numbers.	
Husky	Pressure vacuum vents	4620, 4885, 5885, 11730, 11735, 11740, 450MG-10, 475XLMB-10	B20
Morrison Bros.	Overfill prevention valve	9095S	B20
Morrison Bros.	Anti-syphon valve	912	B100
Morrison Bros.	AST adaptor	927	B100
Morrison Bros.	Ball valves	691BSS	B100
Morrison Bros.	Clock gauges	818	B100

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**Table C-4 (cont.). Underground Equipment**

Company	Product	Model	Biodiesel Compatibility
Morrison Bros.	Clock gauge with alarm	918	B100
Morrison Bros.	Combination vent/overflow alarm	922	B100
Morrison Bros.	Drop tubes	419A, 539TO, 539TC	B100
Morrison Bros.	Emergency vents	244	B100
Morrison Bros.	Expansion relief valve	076DI, 078DI	B100
Morrison Bros.	External emergency valves	346DI, 346FDI, 346SS, 346FSS	B100
Morrison Bros.	Flame arrestor	351S	B100
Morrison Bros.	Frost proof drain valve	128DIS	B100
Morrison Bros.	In-line check valve	958	B100
Morrison Bros.	Internal emergency valves	272DI, 72HDI	B100
Morrison Bros.	Overflow alarm	918TCP	B100
Morrison Bros.	Overflow prevention valve	9095A-AV, 9095SS	B100
Morrison Bros.	Series cap	305C	B100
Morrison Bros.	Solenoid valves (3", must be all-Teflon version)	710SS	B100
Morrison Bros.	Spill containers	515/516/517/518	B100
Morrison Bros.	Swing check valves	246ADI, 246DRF	B100
Morrison Bros.	Vapor recovery adaptor	323	B100
Morrison Bros.	Vapor recovery caps	323C	B100
Morrison Bros.	Vent-pressure vacuum	548, 748, 749	B100
Morrison Bros.	Vent-updraft	354	B100
National Environmental Fiberglass	Sumps and accessories	all	B100
NOV Fiberglass	Piping	RedThread IIA, Ameron Dualoy	B100
NUPI	Piping	Smartflex	B100
OMEGAFLEX	Piping	DoubleTrac (stainless steel fittings)	B100
OPW	AST anti-siphon valve	199ASV	B20
OPW	AST check valve	175, 1175	B20
OPW	AST emergency shut off valve	178S	B20
OPW	AST emergency vent	201, 301	B20
OPW	AST mechanical gauge	200TG	B20

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**Table C-4 (cont.). Underground Equipment**

Company	Product	Model	Biodiesel Compatibility
OPW	AST spill container	211-RMOT, 331, 332	B20
OPW	AST swing check valve	all	B20
OPW	AST tank alarm	444TA	B20
OPW	AST vapor adaptor	1611AVB-1625	B20
OPW	AST vapor cap	1711T-7085-EVR, 1711LPC-0300	B20
OPW	Ball float vent valve	53VML, 30MV	B20
OPW	Check valve	70, 70S	B20
OPW	Dispenser sumps & accessories	FlexWorks	B20
OPW	Drop tube	61FT	B20
OPW	Extractor fittings and plug	233, 233VP	B20
OPW	Face seal adaptor (threaded riser adaptor)	FSA	B20
OPW	Fill adaptor-side	61AS	B20
OPW	Fill adaptor-top	633T, 633TC	B20
OPW	Fill Cap	634TT-7085-EVR, 634LPC, 634TT-4000	B20
OPW	Fill cap-side	62TT	B20
OPW	Fill-swivel adaptor	61SALP-MA, 61SALP-1020-EVR	B20
OPW	Flexible connectors	FCxx	B20
OPW	Jack screw	61JSK, 71JSK	B20
OPW	Manhole	Conquistador, Fiberlite, 104A, 104FG, 104C, 6110, 6120	B20
OPW	Monitoring well cap kit	634TTM	B20
OPW	Monitoring well probe cap	62M, 116M, 62M-MA	B20
OPW	Multi-port spill containment	6511, 6421, 6511, 6521, 6561, 6571, Fiberlite	B20
OPW	Piping	FlexWorks	B20
OPW	Piping	FlexWorks, KPS, Pisces (discontinued)	B20
OPW	Pressure vacuum vent	523V, 623V	B20
OPW	Spill container (bucket)	1-2100, 1SC-2100, 1C-2100, 1C-2200, EDGE (1-3100), *1-2105, 101-BG2100	B20
OPW	Tank sumps & accessories	Fiberlite, FlexWorks	B20
OPW	Transition sumps & accessories	FlexWorks	B20

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**Table C-4 (cont.). Underground Equipment**

Company	Product	Model	Biodiesel Compatibility
OPW	Vapor adaptor	1611AV, 1611AVB	B20
OPW	Vapor cap	1711T-7085-EVR, 1711LPC	B20
OPW	Vapor-swivel adaptor	61VSA-MA, 61VSA-1020-EVR	B20
Veeder-Root	Ground water monitoring	P/N 794380-621, 794380-622, 794380-624	B20
Veeder-Root	Interstitial and secondary containment monitoring	P/N 794380-XXX, 794390-XXX, 847990-00X, 857080-XXX, P/N 794380-321, 794380-323, 794380-333, 794380-344, 794380-345, 794380-351, 794380-430	B20
Veeder-Root	Continuous interstitial tank system	P/N 857280-100, 857280-200, 857280-30X	B100
Veeder-Root	Electronic line leak detector	Series 8484, 8590	B100
Veeder-Root	Interstitial and secondary containment monitoring	794380-344, 794380-345, 794380-321, 794380-351	B100
Veeder-Root	Magnetostrictive Probe	Mag Plus Series 8463XX, Mag Series 8473XX	B100
Veeder-Root	Red Jacket Maxxum Pump	410763-XXX (MXP300JX-XXX or MXP500JX-XXX)	B100
Veeder-Root	Tall tank probe	Mag-FLEX 889560-XXX, MAGXL-XXX	B100
Veeder-Root	Vapor monitoring	P/N 394390-700	B20
Western Fiberglass	Co-flex piping	all	B100
Western Fiberglass	Co-flow hydrostatic monitoring systems	all	B100
Western Fiberglass	Cuff fittings	all	B100
Western Fiberglass	Sumps (dispenser, tank, transition, vapor, vent)	all	B100

## Aboveground Equipment (Dispensers, Hanging Hardware, etc.)

Table C-5. Dispensers, Hanging Hardware, Shear Valves, Submersible Turbine Pumps			
Company	Product	Model	Biodiesel Compatibility
<b>UL B20 Listed Equipment</b>			
Manufacturers introduce and discontinue models over time. If you do not see your equipment on this list, please contact the manufacturer. Note, X in these lists can be substituted for any value.			
Franklin Fueling	Shear valve	Franklin has third-party certified equipment compatible with biodiesel blends. Contact manufacturer for specific part numbers.	
Franklin Fueling	Submersible turbine pump	Franklin has third-party certified equipment compatible with biodiesel blends. Contact manufacturer for specific part numbers.	
Gilbarco	Dispenser	All Encore models since 1/1/2014	B20
Husky	Breakaway	5812 Safe-T-Brake	B20
Husky	Nozzle	VIII	B20
Husky	Swivel	4860	B20
OPW	Breakaway	66V-030RF, 66V-130RF, 66V-135RF, 66RB-20RF	B20
OPW	Nozzle	7H models ending in -B20; 11A models ending in -B20; 11B models ending in -B20	B20
OPW	Swivel	241TPS-75RF, 241TPS-10RF	B20
OPW	Shear valve	10P-0152	B20
Veyance	Hose	Flexsteel Futura	B20
Wayne	Dispenser	Option on Ovation and Helix models. Contact Wayne for Specific model information.	B20

## Appendix C: Biodiesel Materials Compatibility Summary Tables

Neat biodiesel is not compatible with certain elastomers, metals, and plastics that are commonly used with petroleum diesel. Generally (but not always), biodiesel blends of 20% or lower have a much smaller effect on these materials; the very small concentrations of bio-

diesel in B5 or B2 have no noticeable effect on materials compatibility. If in doubt, contact the manufacturer for more information about the compatibility of specific materials with biodiesel fuels or fatty methyl esters (see Table C-1).

### Elastomers

Table C-1. Elastomer Compatibility with Biodiesel		
Material	Compatibility with Fresh, Unoxidized Methyl Oleate Unless Noted	Reference
Buna-N	Not recommended	3,4
Butadiene	Not recommended	2
Butyl	Mild effect	2,4
Chemraz	Satisfactory	4
Ethylene propylene (EPDM)	Moderate effect	2,4
Fluorocarbon	Satisfactory	2,4,5
Fluorosilicon	Mild effect; increase swelling	1
Fluorosilicone	Mild effect	2,4
Hifluor	Satisfactory	2
Hypalon	Not recommended	2,4
Natural Rubber	Not recommended	2,4
Neoprene	Not recommended	3,4
Neoprene/Chloroprene	Not recommended	2
Nitrile	Not recommended	1,2
Nitrile, high aceto-nitrile	Mild effect with B20, swelling and break strength affected	5
Nitrile, hydrogenated	Not recommended	2,4
Nitrile, peroxide-cured	Mild effect with B20, swelling and break strength affected	5
Nordel	Moderate to severe effect	3
Nylon	Satisfactory	1
Perfluoroelastomer	Satisfactory	2
Polypropylene	Moderate effect; increased swelling, hardness reduced	1
Polyurethane	Mild effect; increased swelling	1
Styrene-butadiene	Not recommended	2,4
Teflon	Satisfactory	1,3,4

Table C-1 continued on next page

**Table C-1 (cont.). Elastomer Compatibility with Biodiesel**

Material	Compatibility with Fresh, Unoxidized Methyl Oleate Unless Noted	Reference
Viton	Satisfactory; type of cure affects compatibility with oxidized biodiesel see specific types of Viton below	1,3
Viton A-401C	Satisfactory with fresh RME; not recommended for oxidized blends B20 and above	6
Viton F-605C	Satisfactory with fresh RME; not recommended for oxidized blends B20 and above	6
Viton GBL-S	Satisfactory with RME and with all oxidized blends	6
Viton GF-S	Satisfactory with RME and with all oxidized blends	6
Wil-Flex	Moderate to severe effect	3

RME = rapeseed methyl ester

1. Bessee, G.B. and J.P. Fey. Compatibility of Elastomers and Metals in Biodiesel Fuel Blends. SAE 971690. 1997.
2. Parker O-Ring Handbook, Parker Hannifin Corporation, O-Ring Division, Lexington, KY, 2007.
3. Chemical Resistance Guide, Wilden Pump & Engineering Co., Grand Terrace, CA, 2005.
4. O-Ring Chemical Compatibility Guide, Custom Rubber O-Ring Mfg., Accessed November 2, 2015. [efunda.com/designstandards/oring/oring\\_chemical.cfm](http://efunda.com/designstandards/oring/oring_chemical.cfm)
5. Terry, B., R.L. McCormick, M. Natarajan. "Impact of Biodiesel Blends on Fuel System Component Durability." SAE 2006-01-3279, 2006.
6. Thomas, E., R.E. Fuller, K. Terauchi. "Fluoroelastomer Compatibility with Biodiesel Fuels," SAE 2007-01-4061, 2007.

## Metals

Certain metals may affect the biodiesel by accelerating its oxidation process and creating fuel insolubles. Lead, tin, brass, bronze, and zinc significantly increase sediment formation in both B100 and B20. Galvanized metal and terne-coated sheet metal are not compatible with biodiesel at any blend level.