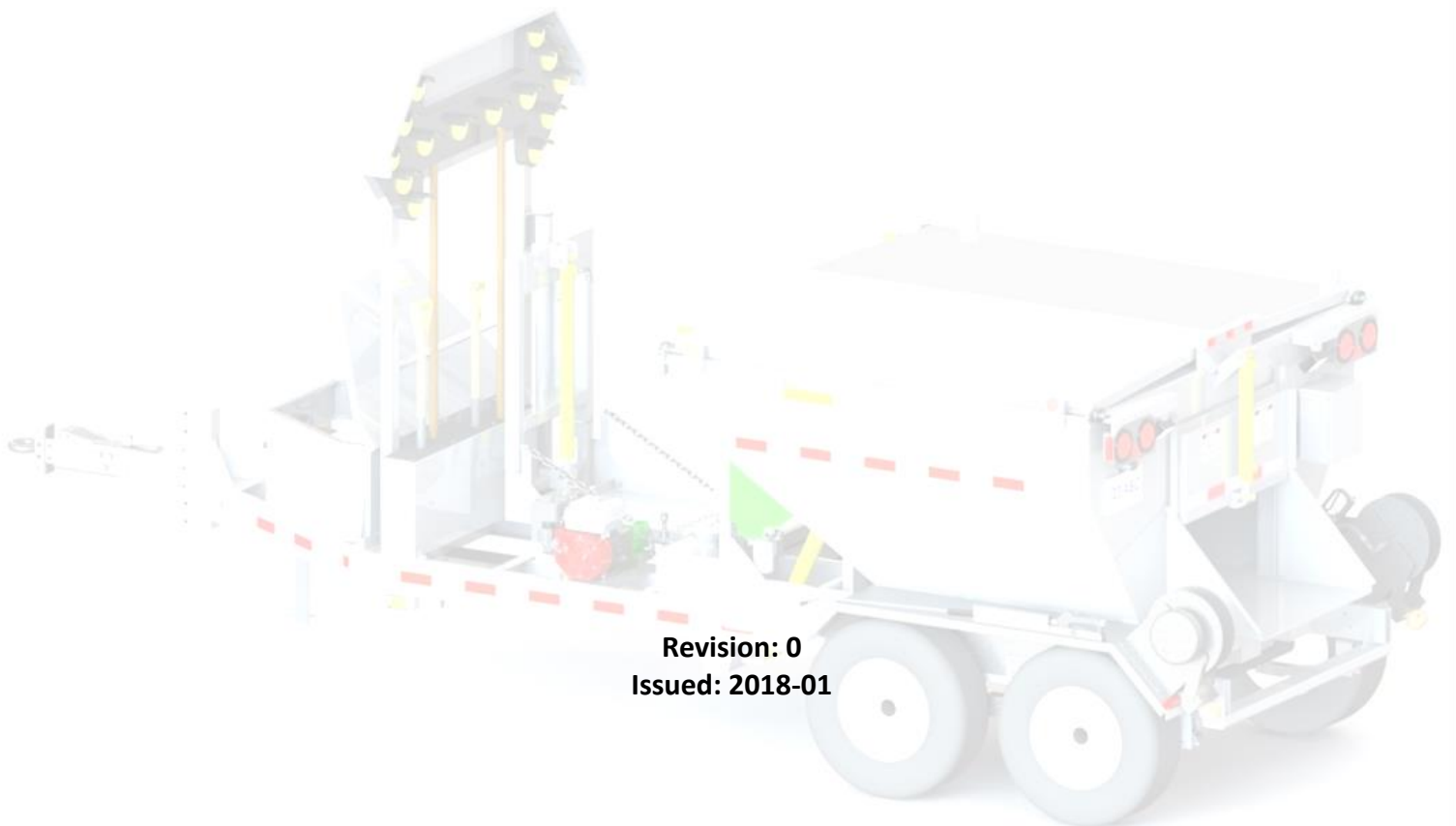


Appendix

Using a Fuel Burner in Cold Weather



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1. Understanding Winter Fuel

Diesel fuel has the disadvantage of seeing significant changes in its properties when the temperature changes. Mostly, its viscosity increases as the temperature decreases, changing it into a gel that cannot flow in fuel systems. This property is referred to as the “cloud point”, that is, the low temperature point at which the waxes in diesel “cloud” the fuel.

In Canada, “winter fuel” is sold at the pump approximately between November and April, with further custom properties depending on the climate of the specific region.

References:

- Canadian Fuels Association – Winter Fuels:
<http://www.canadianfuels.ca/Blog/November-2015/How-refineries-make-fuels-right-for-winter-driving/>
- General information about diesel fuel:
https://en.wikipedia.org/wiki/Diesel_fuel

2. Tips to prevent problems in cold temperatures

2.1. Make sure to use a season-appropriate fuel

If you are using a fuel that is season- and climate-appropriate, you should not get any problems with your burner.

2.2. Add kerosene to your fuel

Kerosene is an approved fuel for the Beckett burner that features a lower cloud point. When the temperatures start to drop and your tank is still full with “summer fuel”, you can add kerosene to it:

- Maximum ratio of 1:1 (50% kerosene)
- The mixing process should be done at temperatures above freezing point, otherwise the liquids will not mix properly:
 - Ideally, proceed to mixing directly at the pump if you think the fuel will last into winter, or
 - Make sure both liquids are at room temperature when performing the addition

Other notes:

- Official Recipe: Unfortunately, it is not possible to confirm an ideal, official kerosene to fuel ratio since there are too many factors involved such as climate and original fuel properties.
- Other additives: Novilco does not recommend the addition of other additives since they can change the fuel properties and are not approved by the burner manufacturer (Beckett).

References:

- Fuels approved by Beckett:
<https://www.beckettcorp.com/support/tech-bulletins/alternative-fuels-and-beckett-burners/>
- General information about kerosene and winter fuel:
https://en.wikipedia.org/wiki/Winter_diesel_fuel

2.3. Maintain your equipment year-round

- Make sure to follow the maintenance schedule for your burner and fuel components (refer to your Novilco and Beckett manuals).
- Make sure your battery is fully charged.
- **If you have experienced clogging**, proceed to a full clean-up and maintenance of your burner and fuel components (such as fuel filter).

Always follow the safety instructions, and never start or attempt to start a diesel burner indoors or in a non-ventilated area.