



*Edwards Engineering*

60 Years of Excellence In Heat Transfer Products

- Geothermal Heat Pumps
- Packaged & HVAC Chillers
- Vapor Recovery Systems

## **Hydrocarbon Effluent Standards Worldwide**

### ***U.S. Standard - 35 mg of HC exhausted per liter of Liquid Transferred***

- Outlet Temperature = -100°F (-73°C).
- Achieved with Mechanical Refrigeration Vapor Recovery System.
- For overload, use Liquid Nitrogen - 0.024 ft<sup>3</sup> (0.0007 m<sup>3</sup>) of N<sub>2</sub> vapor per gallon of overload beyond rated capacity.

### ***New U.S. Standard - 10 mg of HC Exhausted per liter of Liquid Transferred***

- New U.S. Standard of 10 mg of HC exhausted per liter of liquid transferred. This requires an outlet temperature of -180°F (-118°C). Achieved with Cryo-Mechanical Vapor Recovery System with LN<sub>2</sub> usage of 0.0487 (0.0014m<sup>3</sup>) ft<sup>3</sup> of N<sub>2</sub> vapor per gallon loaded. For overload, estimated LN<sub>2</sub> usage is an additional 0.024 ft<sup>3</sup> (0.0007m<sup>3</sup>) of N<sub>2</sub> per gallon of overload.

### ***ECM Proposed Standard - 35 grams of HC Exhausted per Cubic Meter of Vapor Exhausted***

- Outlet Temperature = -140°F (-95°C).
- Achieved with Cryo-Mechanical Vapor Recovery System.
- LN<sub>2</sub> Usage is 0.024 ft<sup>3</sup> (0.0007 m<sup>3</sup>) of N<sub>2</sub> vapor per gallon loaded.
- For overload, an additional 0.024 ft<sup>3</sup> (0.0007 m<sup>3</sup>) of N<sub>2</sub> vapor per gallon of overload is required.

### ***TA Luft Standard - 0.150 grams of HC Exhausted per Cubic Meter of Vapor Exhausted***

- Outlet Temperature = -270°F (-168°C).
- Achieved with Cryo-Mechanical Vapor Recovery System.
- LN<sub>2</sub> Usage is 0.073 ft<sup>3</sup> (0.0021 m<sup>3</sup>) of N<sub>2</sub> vapor per gallon loaded.
- For overload, an additional 0.024 ft<sup>3</sup> (0.0007 m<sup>3</sup>) of N<sub>2</sub> vapor per gallon of overload is required.

#### ***Chiller Solutions LLC***

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