



TECHNICAL BULLETIN

DESIGN GUIDANCE FOR INERT GAS PROTECTION OF CLASS B FUELS

1. INTENDED USE

This document provides design guidance for the protection of class B fuels when using inert gas.

2. DATA SPECIFICATIONS

2.1 System Testing

When designing an inert gas fire extinguishing system that protects Class B hazards, the extinguishing concentration must be included for the extinguishing agent to achieve a safety factor in accordance with NFPA 2001 (2025 ed.), section 7.2.2.2.3, as well as ISO 14520-1 (2023 ed.), section 7.6.1.2.

Determination of Class B extinguishing concentrations for a given agent-fuel combination is described in NFPA 2001 (2025 ed.) Annex C. A nearly identical procedure is described in ISO 14520-1 (2023 ed.) Annex B.

The 2024/2025 Viking Oxexo Inert Gas Extinguishing System testing included nitrogen (IG-100), argon (IG-01), ARGONITE® (IG-55), and INERGEN® (IG-541), combined with fourteen Class B fuels (refer to the chart below for more details). A third-party analysis of the testing data and procedures confirmed that The Viking Corporation's 2024/2025 testing results are consistent with the 2008 inter-laboratory study¹ in accordance with ASTM E691 (2023 ed.) and ISO 5725-1 (2023 ed.).

The following table summarizes the testing results for the tested agent-fuel combinations.

Table 1: Summary of the Inert Gas Minimum Extinguishing Concentration (MEC) Results

Fuel	IG-100	IG-01	IG-55	IG-541
Acetone	30.2	39.8	36.0	33.3
n-Butane	33.3	43.2	38.2	36.2
Diesel no. 2	32.7	42.0	39.3	35.6
Ethanol	35.8	45.0	41.8	39.6
n-Heptane	33.7	43.1	39.2	36.9
Heptane, comm.*	32.6	42.7	37.5	35.4
Kerosene	33.4	43.1	41.5	35.3
Methanol	42.7	53.7	47.9	45.2
Propane	33.4	43.9	38.9	36.7
n-Propanol	33.8	43.6	38.5	36.2
iso-Propanol	30.5	40.4	35.9	33.7
Toluene	28.8	37.5	34.2	31.7
Transformer oil**	38.5	49.6	43.3	41.2
Xylene	28.5	36.8	33.0	29.6
Footnotes: *Commercial blend of heptane isomers **Petroleum distillate, CAS 64742-53-6				



WHITE PAPER



SUPPLEMENTAL
WHITE PAPER DATA

¹ Actual study was published in 2008; however, data was collected in 2006. Senecal, J.A., "Standardized the Measurement of Minimum Extinguishing Concentrations of Gaseous Agents," Fire Technology, Vol. 44, No. 3, pp. 207-220, September 2008.