

Refrigerated transport — Procedure for determining performance and calculating energy efficiency

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Foreword

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Summary of pages

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Introduction

This Publicly Available Specification was developed to provide manufacturers and suppliers of refrigerated transport equipment with procedures and defined conditions for measuring the performance of their products.

It is expected that the use of the *K* coefficient for insulated bodies and coefficient of performance (COP) values for refrigeration units will provide purchasers of such equipment with the means for comparing product energy efficiency information.

1 Scope

This Publicly Available Specification (PAS) specifies procedures for determining the performance and energy efficiency of refrigerated transport equipment, and includes:

- a) insulated bodies in the form of trailers, semi-trailers, rigid bodied trucks and vans; and
- b) refrigeration units which are driven by independent engines or motors, or those driven by the vehicle itself by electrical, mechanical or hydraulic means.

This PAS is aimed at suitably qualified and experienced personnel in the refrigerated transport industry.

2 Terms and definitions

For the purposes of this Publicly Available Specification, the following terms and definitions apply.

2.1

calorimeter box

calibrated insulated chamber fitted with electric resistance heaters for adding a measured quantity of heat

2.2

class

chilled carriage at 0 °C and frozen carriage at –20 °C

2.3

coefficient of performance (COP)

ratio of refrigerating capacity to power input

2.4

compressor

mechanically operated component for compressing a refrigerant vapour

2.5

fan heater unit

any combination of fan(s) and heater(s) used to maintain internal temperature during testing

2.6

insulated body

thermally insulated vehicle body designed for the transport of thermally sensitive goods by road

2.7

***K* coefficient**

overall coefficient of heat transfer which represents the insulating capacity of the equipment

2.8

mechanical refrigeration unit

refrigeration unit that is mechanically driven and uses a vapour compression refrigeration system

2.9

refrigerant

working fluid in a refrigerating system absorbing heat at low pressure/temperature by evaporation and rejecting it at a higher pressure/temperature by condensation