

DIN EN 16440-2:2024-01 (E)

Testing methodologies for refrigerating devices for insulated means of transport - Part 2: Eutectic cooling devices

Contents		Page
	European foreword	4
1	Scope.....	5
2	Normative references.....	5
3	Terms and definitions.....	5
3.1	General terms and definitions	5
3.2	Terms and definitions for eutectic units with fans only.....	9
3.3	Typical setups for direct and indirect eutectic cooling devices.....	9
3.4	Symbols and uncertainties	11
4	Requirements.....	12
4.1	General.....	12
4.2	Description of the eutectic cooling devices and eutectic units	12
4.3	Test equipment.....	12
4.3.1	General requirements.....	12
4.3.2	Requirements for the calorimeter box	13
4.3.3	Requirements for the conditioned test room.....	16
4.4	Installation and connection of the eutectic cooling device.....	17
4.4.1	General.....	17
4.4.2	Installation of eutectic cooling device with locally separated components (split system)	17
5	Test conditions and methodology.....	17
5.1	General.....	17
5.2	Test conditions	17
5.2.1	Generality and rated conditions.....	17
5.2.2	Temperature measurements.....	18
5.3	Testing of dependent eutectic cooling device	19
5.3.1	General.....	19
5.3.2	Mandatory test 1: Testing of the charging time and the total energy consumption of the eutectic cooling device	21
5.3.3	Mandatory test 2: Testing of the maximum cooling time and the useful cooling energy	21
5.3.4	Optional test 3: Testing of the recharging time	22
5.3.5	Optional test 4: Testing of cooling time and energy after recharging	22
5.3.6	Measurements for performance testing.....	22
5.4	Time measurement.....	23
5.5	Functional tests - Defrosting device test	23
5.6	Air flow measurement.....	23
6	Test results.....	23
6.1	General.....	23
6.2	Useful cooling capacity	24
6.3	Total power	25
6.4	Determination of the cooling energy efficiency ratio EER_C	25
7	Test report.....	26
8	Marking	27

8.1	Marking, type plate	27
8.2	Information on total energy consumption	27
	Bibliography	28