ISO5149 Draft Standard review

Ref: ISO5149 standard Rev 1

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Part 1

	Item	ISECO comment	Action/Outcome
1	Table A1 Charge Limits based on toxicity & Table A2 charge Limits based on Flammability	E.g. test against a cold store using ammonia refrigerant with plant in plant room and coils in Space. I.e. Occupancy Type C Class 11 location R717 is a B2L Refrigerant Personal Density less than 1 per 10 sqm Personal Density more than 1 per 10sqm	No charge Limit = ok Charge limit for Class 11 = **25kg** This will stop use of direct ammonia large charge in boning rooms etc which is probably good practice anyway.
2	Table A1 Charge Limits based on toxicity & Table A2 charge Limits based on Flammability	E.g. Ammonia to chilled water through a single Plate heat exchanger serving an office building I.e. Occupancy Type B Class 111 Location B2L Refrigerant	No charge limit = ok but see notes on Parts 2 & 3 for large ammonia systems and also part 1 cl 8.9 (refer below)
3	Table A1 Charge Limits based on toxicity & Table A2 charge Limits based on Flammability	E.g. CO2 DX transcritical serving a 900 sqm supermarket with CO2 Dx in multideck cases in store location Co2 is an A1 Refrigerant so Table A2 (flammability) does not apply. Supermarket = Type A occupancy Class 11 location (i.e. plant in open air or machinery room ,coils in Space	Toxicity Limit x Room volume = 0.1 kg/cum * 900sqm x2.7m = 243 kg charge limit for Co2 This should be ok, we are using significantly less typically. Note back of house rooms occupancy Type C no charge limit except Part 3 CL 8.1 needs safety alarms if Practical Limit is exceeded = ok

4	Table A1 Charge Limits based on toxicity & Table A2 charge Limits based on Flammability	E.g. Small R290 system sealed system located in shop store area serving multideck cases etc above ground R290 is A3 Refrigerant Type A occupancy Class I location of plant	Table A2 20% x LFL x Room Vol and not more than **1.5kg** **Does this mean we can exceed the 150 g limit used in AS/NZS 60335**
5	Cl 8.9 Heat transfer fluid CL 8.9 Flash point - shall not be less than 55oC	Does this apply to use of ethanol water mixtures as secondary refrigerants in Wineries? To date so long as alcohol content was under 24% it was not considered a flammable liquid under the Australian Dangerous Good s regs - The ethanol water mix has an open cup fire point of 68C and does not generate enough heat to sustain combustion	Assume no issues with use of secondary refrigerants such as Alcohol LF ec with less than 24% alcohol?

Part 2

	Item	ISECO comment	Action/Outcome
1	Maximum allowable pressure (PS) Cl 5.2.2.1	There are two methods permitted to be used to determine the design pressures/ temperatures Our concern is that this will be open to interpretation unless it's clear what "regional Data " is permissible. It was better when DA-9 critical 0800-1800 was specified - not certain what the reference to IEC 60721 is.	Could be some increases in the traditionally used design pressures if Table 2 is used e.g. Melbourne site with evaporative condenser system would have 43oC sat refrig pressure (Used to be 38.2) .
2	Protection of the Secondary cooling System Cl 5.2.9.5	This requires automatic air/ refrigerant separators on the secondary circuit and or automatic detection in the secondary circuit if primary refrigerant is soluble (e.g. ammonia /water?)	This is new; we have not had any loss or safety issues with ammonia /glycol/ ammonia water systems that have appropriate antifreeze and over pressure protection to date.
3	Appendix B (Normative) Additional requirements for refrigeration systems with ammonia	If refrigerant charge is over 4,500kg - requires a functionally remote controlled shut off in the liquid line	New - probably good practice for larger systems

Part 3

	Item	ISECO comment	Action/Outcome
1	Machinery rooms Clause 5.12.3 Walls floor & ceiling Walls floor & ceiling between the inside of the building and the machinery room shall have minimum 1 hour fire rating Also Doors require 1 hour fire rating (which we did previously have)	This was not specifically stated before	Good practice .
2	Machinery Rooms Clause 5.14.2.2 - Specific requirements for emergency Washing if R717 is used - eyewash & shower are required	This was not previously a normative requirement	Good Practice
3	Fire Sprinkler Systems Claus 5.14.2.3 Fire sprinkler systems shall not be permitted in machinery rooms with R717 systems of more than 200kg charge	This is new and will be at odds with some property insurers requirements e.g. FM and maybe Australian fire sprinkler standards	May need to use a flow switch in the fire sprinkler system to isolate electrical power supplies if this is the concern?