



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



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



Part 2

| | Item | ISECO comment | Action/Outcome |
|---|---|---|--|
| 1 | Maximum allowable pressure (PS) CI 5.2.2.1 | <p>There are two methods permitted to be used to determine the design pressures/ temperatures</p> <p>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.</p> | <p>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 refriger pressure</p> <p>(Used to be 38.2)</p> |
| 2 | Protection of the Secondary cooling System CI 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 | <p>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</p> <p>Also Doors require 1 hour fire rating (which we did previously have)</p> | This was not specifically stated before | Good practice |
| 2 | <p>Machinery Rooms Clause 5.14.2.2 - Specific requirements for emergency Washing if R717 is used - eyewash & shower are required</p> | This was not previously a normative requirement | Good Practice |
| 3 | <p>Fire Sprinkler Systems Claus 5.14.2.3</p> <p>Fire sprinkler systems shall not be permitted in machinery rooms with R717 systems of more than 200kg charge</p> | 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? |