APPENDIX 20

RESTRICTION ON USE OF FLAMMABLE REFRIGERANTS SCOPE

1. This appendix serves to inform all concerned parties that the policy to restrict and regulate the use of flammable refrigerants for the various applications.

DEFINITIONS

2. **"Flammable Refrigerant"** refers to the group of refrigerants with flammability classification of group 2 or 3 in accordance to International Organization for Standardization ISO 5149. For refrigerant blends which have more than one flammability classification, the most unfavourable classification shall be taken for the purpose of this definition. Most of these flammable refrigerants are hydrocarbon (HC) based. Some examples of HC refrigerant include propane, butane and isobutene.

GENERAL REQUIREMENTS

3. The policies to restrict and regulate the use of flammable refrigerants for the various relevant applications are summarised in **Annex A**.

Annex A

Policy on the use of Flammable Refrigerants

S/N	Application	Recommendations
1	**Domestic refrigeration and air conditioners (eg. stand-alone and**	• To allow the use of flammable refrigerant in SPRING-regulated domestic refrigerators, subject to a charge weight cap of 150g of flammable refrigerant and the refrigerant must be hermetically sealed within the refrigerator.
		• To allow the use of flammable refrigerant in SPRING-regulated air-conditioners
		• To educate users (eg. advisory labels) on the inherent risks of flammable refrigerant and issue of disposal.
2	**Air-conditioning systems**	• To disallow the use of flammable refrigerants in building air-conditioning systems[2]. Premises which have converted their air-conditioning systems into using flammable refrigerants as drop-in[3] shall be gradually phased out by end 2018.
		• To disallow the use of flammable refrigerants in vehicle air-conditioning system[4].
3	**Commercial refrigeration systems[5] (e.g. Coldrooms in supermarkets and food storage factories)**	To disallow the use of flammable refrigerants in commercial refrigeration systems.
4	**Industrial process refrigeration systems (e.g. Heat exchangers)**	To disallow the use of flammable refrigerants in industrial process refrigeration systems unless: (1) the use of flammable refrigerants is inherent6 to the industrial process, and (2) has satisfied MFRS's fire safety regulatory requirements For existing users where flammable refrigerant is not inherent to the industrial process, they could still appeal to MFRS. They would need to provide sufficient justifications that the existing fire safety provisions are adequate to address the fire risks posed by the flammable refrigerant or are prepared to implement the necessary additional measures to address the fire risks.

[2] The building air-conditioning systems refer to single/multi split system which requires the installation of piping into occupied areas.

[3] Generally refers to direct replacement of HCFC refrigerant with flammable refrigerant without modifying the operating specifications and design of the equipment

[4] LTA would publish the restriction in the guidelines for car import and car modifications.

[5] Commercial refrigeration systems include chiller room, standalone commercial/retail refrigeration equipment and chiller truck

[6] The use of flammable refrigerant is considered inherent to the industrial process if there are no alternatives which could achieve the necessary specific performance required for the process.