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Honeywell Statement on Solstice® R-1234ze(E) Refrigerant under PED

To Whom It May Concern:

Article 13 of the Pressure Equipment Directive 2014/68/EU (PED, recast of Directive 97/23/EC)¹ separates ‘fluids’, which are defined in accordance with PED Article 2(12) as gases, liquids and vapours in pure phase as well as mixtures thereof, into two groups based on their hazard classification in accordance with the EU Classification, Labelling and Packaging Regulation (CLP Regulation 1272/2008)². Group 1 comprises ‘dangerous fluids’, as classified in accordance to the CLP criteria (Appendix 1), whilst a Group 2 fluid is any other fluid. To take account of the hazards associated with dangerous fluids, the requirements for compliance with PED are generally more extensive for Group 1 fluids than for Group 2 fluids.

Honeywell is pleased to report that at the recent EN378 Working Group (WG) meeting, held in Glasgow from 9-12 December 2014, the PED classification of Solstice® R-1234ze(E) has been reviewed, following several comments received from various Member Countries. At the above mentioned WG meeting it was decided that in accordance with the PED, taking into consideration CLP criteria and the safety information provided in the Safety Data Sheet (SDS), Solstice® R1234ze(E) does not meet – given its lack of any physical or health hazard - the hazard criteria of PED fluid Group 1, and as a result does fall into PED fluid Group 2. The EN378 classification table has been updated accordingly and is shown in the Appendix 2 to this statement.³

I trust the confirmation of the PED fluid Group 2 classification for Solstice® R-1234ze(E) will remove any unnecessary constraints in using this refrigerant in your future equipment.

Honeywell duly registered Solstice® R1234ze, with chemical name trans-1,3,3,3-tetra-fluoroprop-1-ene, under REACH at the highest tonnage tier and the classification, as submitted to the European Chemicals Agency (ECHA) is reported in the available Producer’s SDS.

Yours sincerely,



Dr. Mark Boelens
Director - Product Stewardship &
Regulatory Affairs - EMEA

Appendix 1:

PED Article 13 – Classification of pressure equipment

1. Pressure equipment referred to in Article 4(1) shall be classified by category in accordance with Annex II, according to an ascending level of hazard.

For the purposes of such classification fluids shall be divided into the following two groups:

(a) group 1 consisting of substances and mixtures, as defined in points (7) and (8) of Article 2 of Regulation (EC) No 1272/2008, that are classified as hazardous in accordance with the following physical or health hazard classes laid down in Parts 2 and 3 of Annex I to that Regulation:

- (i) unstable explosives or explosives of Divisions 1.1, 1.2, 1.3, 1.4 and 1.5;
- (ii) flammable gases, category 1 and 2;
- (iii) oxidising gases, category 1;
- (iv) flammable liquids, category 1 and 2;
- (v) flammable liquids, category 3 where the maximum allowable temperature is above the flashpoint;
- (vi) flammable solids, category 1 and 2;
- (vii) self-reactive substances and mixtures, type A to F;
- (viii) pyrophoric liquids, category 1;
- (ix) pyrophoric solids, category 1;
- (x) substances and mixtures which in contact with water emit flammable gases, category 1, 2 and 3;
- (xi) oxidising liquids, category 1, 2 and 3;
- (xii) oxidising solids, category 1, 2 and 3;
- (xiii) organic peroxides types A to F;
- (xiv) acute oral toxicity, category 1 and 2;
- (xv) acute dermal toxicity, category 1 and 2;
- (xvi) acute inhalation toxicity, category 1, 2 and 3;
- (xvii) specific target organ toxicity – single exposure, category 1.

Appendix 2:

prEN 378-1:2013 (E)

Table E.1 (continued)

Refrigerant number	Chemical name ^b	Chemical formula	Safety class	PED ^c fluid group	Practical limit ^d (kg m ⁻³)	ATEL/ODL ^e (kg m ⁻³)	LFL ^h (kg m ⁻³)	Vapour density 25 °C, 101,3 kPa ^a (kg m ⁻³)	Molecular mass ^a	Normal boiling point ^a (°C)	ODP ^{a,e}	GWP ^{a,n} (F-gas) (100 yr ITH)	GWP ^{a,f} (IPCC) (100 yr ITH)	Auto ignition temperature (°C)
Propane series														
218	Octafluoropropane	CF ₃ CF ₂ CF ₃	A1	2	1,84	0,85 ^l	NF	7,69	188,0	- 37	0	8 600	8 830	ND
227ea	1,1,1,2,3,3,3-heptafluoropropane	CF ₃ CHFCF ₃	A1	2	0,63	0,63 ^l	NF	6,95	170,0	- 15	0	3 500	3 220	ND
236fa	1,1,1,3,3,3-hexafluoropropane	CF ₃ CH ₂ CF ₃	A1	2	0,59 ^l	0,34 ^l	NF	6,22	152,0	- 1	0	9 400	9 810	ND
245fa	1,1,1,3,3-pentafluoropropane	CF ₃ CH ₂ CHF ₂	B1	2	0,19	0,19	NF	5,48	134,0	15	0	950	1 030	ND
290	Propane	CH ₃ CH ₂ CH ₃	A3	1	0,008	0,09	0,038	1,80	44,0	- 42	0	ND	3	470
1234yf	2,3,3,3-tetrafluoroprop-1-ene	CF ₃ CF=CH ₂	A2L	1	0,058	0,47 ^l	0,289	4,66	114,0	- 26	0	ND	4 ^m	405
1234ze	Trans-1,3,3,3-tetrafluoroprop-1-ene	CF ₃ CF=CHF	A2L	2 ^p	0,061	0,28	0,303	4,66	114,0	- 19	0	ND	7 ^m	368
1270	Propene (propylene)	CH ₃ CH=CH ₂	A3	1	0,008 ^l	0,0017 ^{l,k}	0,046	1,72	42,1	- 48	0	ND	8	455
Cyclic organic compounds														
C318	Octafluorocyclobutane	C ₄ F ₈	A1	2	0,81	0,0,65	NF	8,18	200,0	- 6	0	10 000	10 300	ND
Hydrocarbons														
600	Butane	CH ₃ CH ₂ CH ₂ CH ₃	A3	1	0,0089 ^l	0,0024 ^{l,k}	0,038	2,38	58,1	0	0	ND	4	365
600a	2-methyl propane (isobutane)	CH(CH ₃) ₃	A3	1	0,011 ^l	0,059	0,043	2,38	58,1	- 12	0	ND	-20	460
601	Pentane	CH ₃ CH ₂ CH ₂ CH ₂ CH ₃	A3	1	0,008 ^l	0,0029 ^{l,k}	0,035	2,95	72,1	36	0	ND	-20	ND
601a	2methyl butane (isopentane)	(CH ₃) ₂ CHCH ₂ CH ₃	A3	1	0,008 ^l	0,0029 ^{l,k}	0,038	2,95	72,1	27	0	ND	-20	ND
Other organic compounds														
E170	Dimethyl ether	(CH ₃) ₂ O	A3	1	0,013 ^l	0,079	0,064	1,88	46	- 25	0	ND	1	235

References:

1

Directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of pressure equipment [recast of Directive 97/23/EC of the European Parliament and of the Council of 29 May 1997 on the Approximation of the Laws of the Member States concerning Pressure Equipment] (OJ L 189, 27.6.2014, p164-259), hereafter referred to as the Pressure Equipment Directive or PED.

2

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on Classification, Labelling and Packaging of Substances and Mixtures, Amending and Repealing Directives 67/548/EEC and 1999/45/EC, and Amending Regulation (EC) No 1907/2006, (OJ L 353, 31.12.08, pp1-1335), hereafter referred to as the Classification, Labelling and Packaging Regulation, the CLP Regulation or CLP.

3

prEN 378-1 Refrigerating systems and heat pumps – safety and environmental requirements – Part 1: basic requirements, definitions, classification and selection criteria. CEN/TC 182