

FD4 – Infringement and Validity
FINAL Mark Scheme 2017

CONSTRUCTION (page and line numbers are given as examples, except where specified)

CLAIM 1

A sprinkler for automatically expelling a fire extinguishing fluid	Define the field. Limited to frangible bulbs? Line 2-3 page 3	0.5
	Fire extinguishing fluid – what is the ‘fluid’ in context line 10-12 page 3	0.5
	‘For’ suitable for	0.5
	‘automatically’ what does that connote line 7-12 or 28-30 page 3	0.5
the sprinkler comprising a frame and a thermally responsive member,	Comprising – not limited	0.5
	Frame - reference to function e.g. line 35 page 5 to line 3 page 6	0.5
	Thermally responsive member?– something responsive to temperature changes Glass bulb 6A line 10-12 page 6	0.5
The frame having an opening which is connectable to a source of fire extinguishing fluid and a valve closing the opening	State of the art according to client (line 7-18 page 2)	0.5
	Connectable? System claimed in isolation, line 1 and 6-7 page 6 Valve closing (in normal use and before actuation) to prevent release of extinguishant (line 1 page 6)	0.5
the thermally responsive member being held by the frame to bear against the valve	Held by? Line 2-3 page 6	0.5
	Bear against? Line 2-3 page 6	0.5
and containing a first and second fluid that when exposed to heat, at least one of the species will expand to break the thermally responsive member to actuate the valve and allow fire extinguishing fluid to flow	And containing – the thermally responsive element contains	0.5
	One of the species – lack of antecedence means one of first and second fluids	0.5
	What is a fluid? Would PSA consider liquids only (ln 24 pg 3)	0.5
	What are the first and second fluids (line 6-8 page 4)	0.5
	First and second fluids– physical state at actuation temp?	0.5
	Does this include gas bubble – said to be a fluid at line 16-20 pg 6 but also said to be unavoidable (line 19-20 page 6)	0.5
	Would patentee intend to include this?. AND does not interfere with the fluids (line 1 page 5)	0.5
	At least one of the first and second fluid is expandable to break the thermally responsive member line 8-9 page 7	0.5
	To actuate? – actually to allow the extinguishant to flow e.g., line 3-6 page 6, or line 10 page 4	0.5

**FD4 – Infringement and Validity
FINAL Mark Scheme 2017**

The actuation time being less than 12 s at 75°C and less than 7s at 120°C.	Actuation time – page 4 at line 10-17 (nb 'less than' so discussion of lower (and upper) number ranges seems pointless)	0.5
Total		10.5

CLAIM 2

A sprinkler according to Claim 1	Claimed sprinkler has all the features of claim 1, plus the following.	
wherein the first species is a fluid and the second species is a liquid.	'Species' – inconsistent with Claim 1, and what does term mean? (line 6 page 4 relates 'species' to 'liquids' Is first 'species' a gas or liquid? Is this limited to a liquid – consistency with C11 Second species is a liquid – At what temperature? – at actuation temperature? [aide memoire - Does this Claim provide any meaningful limitation?]	0.5 0.5 0.5
Total		2

CLAIM 3

A sprinkler according to Claim 2	A sprinkler having all the features of claim 1 and claim 2, plus the following;	
wherein the first species and third species are immiscible liquids.	<u>NOTE</u> – third species. Is this an error or a lack of antecedence (see line 167 page 6 and page 4 line 18-19)? Species are liquids – discuss Immiscible – don't mix (line 21 of page 4) [n.b ensure consistency with species/fluids]	0.5 0.5 0.5
Total		1.5

CLAIM 4

A sprinkler according to Claim 3	The following features, appended to claims 1+2+3.	
wherein the first liquid has a boiling point and density less than the second liquid.	Note first and <u>second liquid</u> - discuss Provides information about which liquid lies where in use line 26-29 page 4 [n.b ensure consistency with species/fluids]	0.5 0.5
Total		1

**FD4 – Infringement and Validity
FINAL Mark Scheme 2017**

CLAIM 5

A sprinkler according to Claim 1	Having all the features of claim 1, and the following.	
wherein the thermally responsive member is a glass bulb with an upper pointed end and a lower rounded end	Is 'glass bulb' a limitation – see line 3 page 3 Upper end/lower end - spatial configuration in use and when installed. Reference to Figures and inlet 4 – line 35 page 4 to line 2 page 5 and 16-17 page 6	0.5 0.5
the upper pointed end being for accommodating an air bubble.	Suitable for accommodating to prevent interference? Line 1 page 5 “air bubble does not interfere with fluids” Is air one of the fluids? – Must be consistent with Claim 1 construction - line 17 page 6	0.5 0.5
Total		2

CLAIM 6

A sprinkler according to Claim 5	Having all the features of claim 5 plus 1, and the following.	
wherein the glass bulb has a wall between the two ends, which wall is thinner than the lower rounded end.	Two ends are lower/upper pointed Reference to Figures and line 16-17 page 6 Thin walls allows for quick breaking of bulb line 4-7 page 5 (n.b. 'Quick response type' of line 22 page 6 is related to diameter not thickness)	0.5 0.5
Total		1

Dependencies:	1
---------------	---

CONSTRUCTION: TOTAL = 19 marks

FD4 – Infringement and Validity
FINAL Mark Scheme 2017

INFRINGEMENT

CLAIM 1

	<u>SPRINKL-EEZE Pro</u>		<u>SPRINKL-EEZE lite</u>	
A sprinkler for automatically expelling a fire extinguishing fluid	Present – line 10-14 pg 11 Line 4-9 page 12	0.5	Present – line 4-9 pg 12	0.5
the sprinkler comprising a frame and a thermally responsive member,	Present – line 4-9 pg 12	0.5	Present – line 4-9 pg 12	0.5
The frame having an opening which is connectable to a source of fire extinguishing fluid and a valve closing the opening	Present – line 4-9 pg 12	0.5	Present – line 4-9 pg 12	0.5
the thermally responsive member being held by the frame to bear against the valve	Present – line 4-9 pg 12	0.5	Present – line 4-9 pg 12	0.5
and containing a first and second fluid that when exposed to heat, at least one of the species will expand to break the thermally responsive member to actuate the valve and allow fire extinguishing fluid to flow	Water is first fluid – water expands, see In 12-13 pg 11 Is air pocket a second fluid - consistency Is PC a fluid? – it is at actuation temp – consistent with construction?	0.5 0.5 0.5	Is air pocket a fluid? - consistency Is PC a fluid? – Consistency with construction regarding state at actuation temp	0.5 0.5
The actuation time being less than 12 s at 75°C and less than 7s at 120°C.	See line 15-17 of page 11 Likely to satisfy requirements at higher temperature but no information at 75°C but need test data	0.5 0.5	See line 32 to 34 of page 11 Extrapolation of actuation time to 120C – test data	0.5 0.5
		(4.5)		(4.0)
Total				8.5

FD4 – Infringement and Validity
FINAL Mark Scheme 2017

CLAIM 2

A sprinkler according to Claim 1	Features present/not present		Features present/not present	
wherein the first species is a fluid and the second species is a liquid.	Water is second species	0.5	Is air pocket a fluid	0.5
	Is air pocket a first fluid	0.5	Is PC a liquid? – it is at actuation temp	
	Is PC a liquid? – it is at actuation temp			
		(1)		(0.5)
Total				1.5

CLAIM 3

A sprinkler according to Claim 2	Features present/not present		Features present/not present	
wherein the first species and third species are immiscible liquids.	Water and PC appear to be immiscible in diagram (page 11 line 10-13)	0.5	No only air and liquid PC at activation temp	0.5
	Is PC consistent with construction and interpretation of Claim 2?			
		(0.5)		(0.5)
Total				1

CLAIM 4

A sprinkler according to Claim 3	Features present/not present		Features present/not present	
wherein the first liquid has a boiling point and density less than the second liquid.	PC boiling point not mentioned but presumably higher than 100°C	0.5	Not two liquids	0.5
	Water as second fluid? Consistent with construction and interpretation of Claim 2	0.5		
	Density of PC (page 11 line 5-8 and 10-13)	0.5		
		(1.5)		(0.5)
Total				2

**FD4 – Infringement and Validity
FINAL Mark Scheme 2017**

CLAIM 5

A sprinkler according to Claim 1	Features present/not present		Features present/not present	
wherein the thermally responsive member is a glass bulb with an upper pointed end and a lower rounded end	Is there a pointed end?	0.5	Yes – Figure 2	0.5
the upper pointed end being for accommodating an air bubble.	No Pointed end		Yes Figure 2	0.5
		(0.5)		(1.0)
Total				1.5

CLAIM 6

A sprinkler according to Claim 5	Features present/not present		Features present/not present	
wherein the glass bulb has a wall between the two ends, which wall is thinner than the lower rounded end..	No Line 12 page 12	0.5	No Line 12 pg 12	0.5
		(0.5)		(0.5)
Total				1

Dependencies:	2
Conclusions:	2

INFRINGEMENT: TOTAL = 19.5 Marks

FD4 – Infringement and Validity
FINAL Mark Scheme 2017

NOVELTY

Doc C fully available as prior art, Doc D is s.2 (3) art. - **1 mark**

Bespoke Bulb not sufficiently disclosed to **UNABLE TO ANTICIPATE** – **1 mark for identifying and 1 mark for discussion**

CLAIM 1 (marks)

	C		D	
A sprinkler for automatically expelling a fire extinguishing fluid	Not disclosed but usable with. Is that a disclosure?	0.5 0.5	See line 2-3 and/or 5 - 10 of page 14 Line 1-2 page 15 Line 31-32 page 15	0.5
the sprinkler comprising a frame and a thermally responsive member,	Not disclosed but usable with. Is that a disclosure? Standard sprinkler head page 3 line 5-13 and page 2 line 17-18	0.5	See line 5 to 11 of page 14 Line 31-32 page 15 Line 26-27 page 14	0.5
The frame having an opening which is connectable to a source of fire extinguishing fluid and a valve closing the opening	Not disclosed but usable with. Is that a disclosure? Standard sprinkler head page 3 line 5-13 and page 2 line 17-18	0.5	See line 5 to 11 of page 14 Line 31-32 page 15	0.5
the thermally responsive member being held by the frame to bear against the valve	Thermally responsive member disclosed Not disclosed but usable with. Is that a disclosure? Standard sprinkler head page 3 line 5-13 and page 2 line 17-18	0.5	See line 5 to 11 of page 14 Line 31-32 page 15	0.5
and containing a first and second fluid that when exposed to heat, at least one of the species will expand to break the thermally responsive member to actuate the valve and allow fire extinguishing fluid to flow	Is air a fluid? One of the species must expand – explanation	0.5 0.5	Is air a fluid? Yes but does patent construe air pocket as being part of the fluid system line 13-15 page 15 Actuation - Line 24-26 of page 15, liquid 5 or line 26 – 29 page 14	0.5 0.5

**FD4 – Infringement and Validity
FINAL Mark Scheme 2017**

The actuation time being less than 12 s at 75°C and less than 7s at 120°C.	No? But may be inherent – test data	0.5 0.5	Yes, line 29 at page 15, re 70°C and presumably quicker at 120°C. Explanation	0.5 0.5
Conclusion	Claim new	(4.5)	Claim new (if air not part of system)	(4.0)
Total				8.5

CLAIM 2 (marks)

A sprinkler according to Claim 1	No / Yes depending on conclusion		No/Yes	
wherein the first species is a fluid and the second species is a liquid.	Is air a fluid?	0.5	Is air a fluid	0.5
Conclusion	Claim new		Claim new	
Total				1

CLAIM 3 (marks)

A sprinkler according to Claim 2	No/Yes		No/Yes	
wherein the first species and third species are immiscible liquids.	Not present for each	0.5	Not present	0.5
Conclusion	Claim new		Claim new	
Total				1

FD4 – Infringement and Validity
FINAL Mark Scheme 2017

CLAIM 4 (marks)

A sprinkler according to Claim 3	No		No	
wherein the first liquid has a boiling point and density less than the second liquid.	Not present for each	0.5	Not present	0.5
Conclusion	Claim new		Claim new	
Total				1

CLAIM 5 (marks)

A sprinkler according to Claim 1	No / Yes depending on conclusion		No/Yes	
wherein the thermally responsive member is a glass bulb with an upper pointed end and a lower rounded end	Glass bulb – yes Upper pointed end – discuss ‘upper’ in context of Figure	0.5 0.5	Glass bulb – yes (line 31 pg 14) Upper pointed end – yes? (Figure)	0.5 0.5
the upper pointed end being for accommodating an air bubble.	Air bubble - no disclosure although 95% filled	0.5	Yes – Figure and line 14-15 pg 15)	0.5
Conclusion	Claim new		Claim new	
Total				3

FD4 – Infringement and Validity
FINAL Mark Scheme 2017

CLAIM 6 (marks)

A sprinkler according to Claim 5	No		No/Yes	
wherein the glass bulb has a wall between the two ends, which wall is thinner than the lower rounded end.	Thinner – yes (see Figures) Lower rounded end?	0.5	Thinner? No – see Figure and line 5-6 pg 15 Lower rounded end?	0.5
Conclusion	Claim new		Claim new	
Total				1

Discussion of no corresponding prior use (page 2 line 43-44) 0.5 marks
Discussion of features present in Bespoke Bulb blends vs miscibility 1 mark
Actuation temperature 1 mark

Dependencies:	1
Conclusions	2

NOVELTY: TOTAL = 24 Marks

**FD4 – Infringement and Validity
FINAL Mark Scheme 2017**

INVENTIVE STEP

Pozzoli/Windsurfer approach:

PSA is a fire suppression system engineer

CGK of PSA? Sprinkler heads, preamble of doc A and line 18-20 of Doc A, Doc C

Document D not available (may be stated in Novelty section – check – MARKS NOT AVAILABLE FOR USING DOC D)

<u>Proper Pozzoli arguments/set up/CGK/skilled person</u>	2
<u>Doc D not available</u>	1

Claim 1 (7 marks)

- Identify best starting point.
- Differences over prior art
- Inventive concept
- If Bespoke bulb dismissed as starting point – why?
- If Bespoke Bulb adopted as starting point, discussion of homogenous blends
- Discussion of what skilled person would do if ‘blends’ ended up as immiscible layers – ignore and carry on or dismiss
- Expectation of success of achieving time profile
- Use with sprinkler head

**FD4 – Infringement and Validity
FINAL Mark Scheme 2017**

Claim 1 is / is not inventive?

Claim 2 (1 Mark)

Claim not inventive

Claim 3 (2 Marks)

Depending on construction of 'third'?

Bespoke Bulb teaches 100% filled, *i.e.* no air

Inventive if third fluid AIR

If third is a mistake inventive concept line 4-6 page 7 - discussion of immiscibility with respect to blends

Claim 4 (2 Marks)

See Claim 1

Inventive concept –page 4 line 27-33

Claim not inventive/inventive depending on construction

Claim 5 (2 Marks)

Would it be inventive to modify to one of the shape of Standard bulb?

100% filled so not appropriate to use older technology

Claim not inventive

Claim 6 (2 Marks)

See Claim 5

CGK for Standard bulb embodiment

INVENTIVE STEP: TOTAL = 19 MARKS

**FD4 – Infringement and Validity
FINAL Mark Scheme 2017**

SUFFICIENCY

Is the Claim enabled across its entire breadth – only two specific liquids are mentioned.

Points awarded for reasonable discussions about whether skilled person would be able to select liquids (or fluids) to work, whether selection would amount to rudimentary ‘trial and error’ or a ‘research project’ (line 14-21 of page 5).

Does finding mean that claims need amending to specify CH and DMF?

Discussion of bulb strength.

No marks for saying “no sufficiency issues”

SUFFICIENCY: TOTAL = 3.5 MARKS

AMENDMENT

[Note: An exclusive licensee is not able to amend a patent of its own volition – candidates not marked down for suggesting amendments]

Possible amendment to state the second species takes up more volume than the first species (line 31-32 page 4, line 25-27 of page 7 re specific CH and DMF). No clear teaching in Doc C. Inevitable – probably not.

Depending on conclusion – immiscibility’ – i.e. basis for amendment in Claim 3 – properly corrected

Amendments to Claims to correct inconsistencies, add 6A to drawing

AMENDMENT: TOTAL = 3 MARKS

**FD4 – Infringement and Validity
FINAL Mark Scheme 2017**

ADVICE

Brief Summary (no further marks awarded if already states elsewhere)

- Patent is invalid for lack of novelty and inventive step
- Question mark over sufficiency
- Saving amendment **may** render Claims novel and inventive and infringed (note sufficiency point – amendment to CH/DMF not infringed)

Points

Appropriate reasoned points discussed by the candidate relevant to the scenario, which may include:

Document A is in force - check renewals

Seek UKIPO opinion – discussion (validity and infringement?)

Amendment: only the proprietor is able to amend a patent under s.27/s.75

Flame Out Licence issue

Company is exclusive licensee

Can we have a copy to review

What does licence say about right to sue, termination etc.?

Has licence been recorded?.

Implication for Damages if not recorded

What if brother licences Bulb-Us?

Potential Entitlement Issue? And assertion of patent
(Verbal) contract re assignment?

**FD4 – Infringement and Validity
FINAL Mark Scheme 2017**

**FD4 – Infringement and Validity
FINAL Mark Scheme 2017**

Litigation

Could sue immediately with application to amend (if owner).

Need to have patent owner as defendant if not a claimant.

Is interim injunction available? Launch in October 2017. Damage likely to increase with launch at trade fair – reserve status quo.

ADR

Slim chance of settlement/licence – bad blood?

Potential for cross licencing

Check UKIPO for Bulb-Us patents

ADVICE: TOTAL = 12 MARKS

GRAND TOTAL = (C=19; Inf=19.5; Nov=24.5; IS=19; Ame=3; Suff=3.5; Adv=12) 100 MARKS