14 The diagram shows a can that produces whipped cream using gas at high pressure.

high pressure
gas container

S

spout

tap

space above
the cream

cream

can
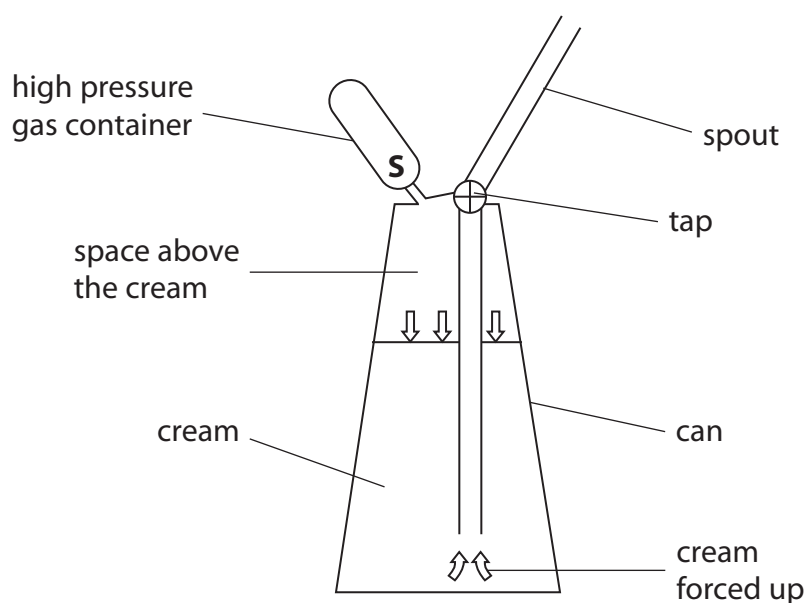
cream
forced up

The volume of the high pressure gas container is 10 cm^3.

The pressure of the gas is 10 000 kPa.

When the seal at **S** is broken, the gas is released into the space above the cream.

The gas expands to a total volume of 270 cm^3.

(a) Calculate the new pressure of the gas.

(2)

Pressure = ... kPa

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(b) As the gas expands into the space above the cream, its temperature decreases.

Using ideas about molecules, explain how this affects the pressure of the gas.

(3)

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(c) Some of the gas molecules dissolve into the cream.

(i) Suggest how this affects the pressure of the gas in the space above the cream.

(2)

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(ii) When the tap is opened, the pressure of the gas forces the cream out of the spout. The pressure outside the can is less than it is inside.

Suggest what happens to the dissolved gas as the cream leaves the can.

(1)

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(Total for Question 14 = 8 marks)