

### Answer on Question#37349 - Chemistry - Inorganic Chemistry

The common form of ideal gas law is:

$$pV = nRT$$

From this equation we can find the number of moles of chlorine:

$$n(\text{moles}) = 101\,325 \cdot 0.33 \cdot 10^{-3} / (8.31 \cdot 273) = 1.47 \cdot 10^{-2}$$

There are two ways to decrease the volume to 0.21L:

- 1) Increase the pressure to  $p(\text{Pa}) = 1.47 \cdot 10^{-2} \cdot 8.31 \cdot 273 / (0.21 \cdot 10^{-3}) = 158\,804.1$
- 2) Decrease the temperature to  $T(\text{K}) = 101\,325 \cdot 0.21 \cdot 10^{-3} / (8.31 \cdot 1.47 \cdot 10^{-2}) = 174.19$

**Answer:** increase the pressure to 158 804.1 Pa, or decrease the temperature to 174.19 K.