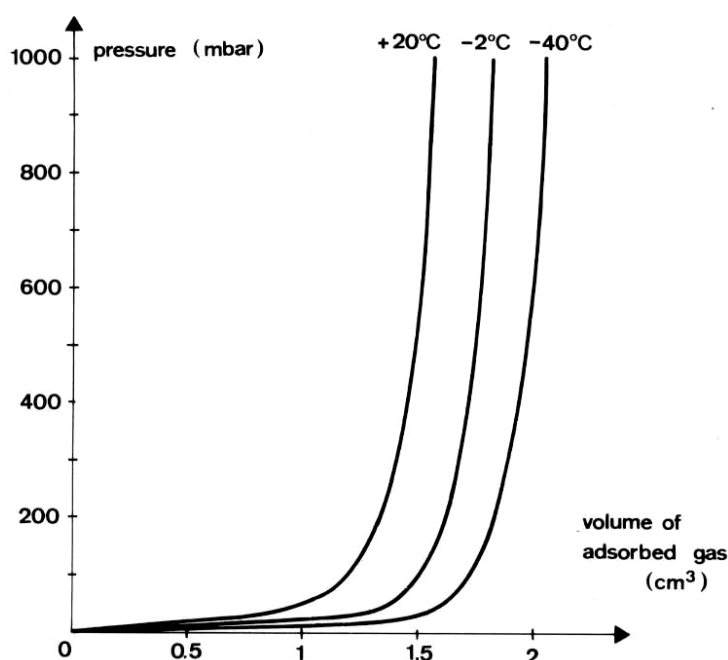


Adsorption of CO₂ on a molecular sieve

Introduction

The experimental thermogravimetric device for gas adsorption at low temperature, described on application note AN235, is used to measure the adsorption of CO₂ on a molecular sieve at different temperatures. The thermogravimetric curves are recorded versus the pressure of CO₂ varying from 10⁻² mm Hg up to normal pressure



Experimental

Sample : LINDE 5A molecular sieve.
Mass : 22.58 mg
Crucible : Silica
Atmosphere : CO₂ (10⁻² mm Hg up to normal pressure)
Heating mode : Isothermal at - 40°C, - 2°C, + 20°C

Instrument :
Setsys Evolution TGA
(ambient to 1600°C)



Results

After desorption at 250°C during 20 hours, the molecular sieve is cooled down to the temperature of experimentation and kept under a vacuum equal to 10 mm Hg. CO₂ is introduced on the sample, and the pressure constantly increases up to normal pressure.

The corresponding records of pressure and thermogravimetric curves allow to draw the variation of volume of adsorbed gas versus the pressure.

It appears that the volume of adsorbed CO₂ is larger at low temperature.