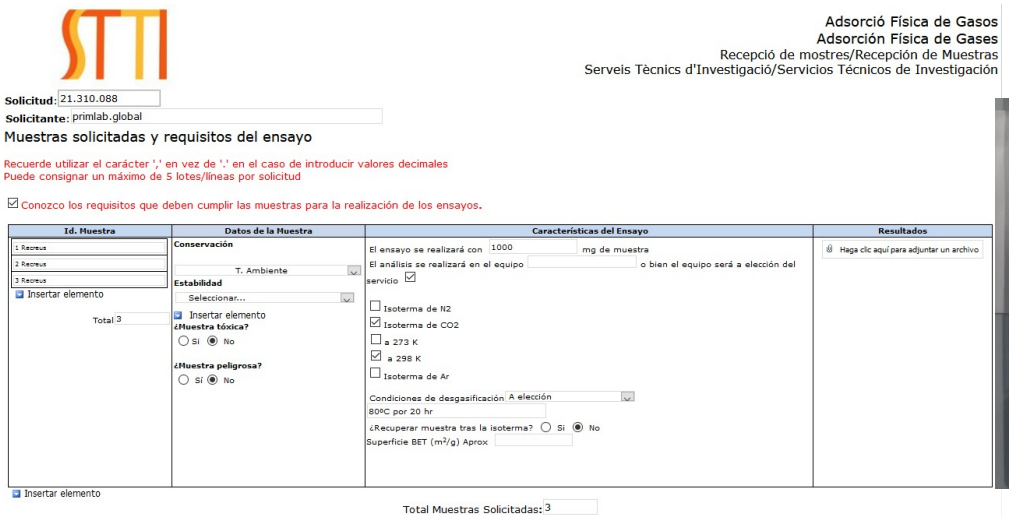
REPORT OF ANALYSIS OF RESULTS

Applicant of the analysis:	RECREUS INDUSTRIES S.L.
Applicant of the report:	RECREUS INDUSTRIES S.L.
Application reference:	21310887 (PHYSICAL ADSORPTION OF GASES)
Date of application	31/03/2021
Date of analysis:	30/04/2021
Lab:	THERMAL ANALYSIS AND CHARACTERIZATION OF POROUS TEXTURE

SAMPLE IDENTIFICATION AND DESCRIPTION

The user sends three samples of polymer pellets. The samples received are named Recreus PET G purifier-4, Recreus PLA purifier-4 and Recreus FilaFlex purifier-6.



Adsorció Física de Gasos
Adsorción Física de Gases
Recepció de mostres/Recepción de Muestras
Serveis Tècnics d'Investigació/Servicios Técnicos de Investigación

Solicitud: 21.310.088
Solicitante: primlab.global

Muestras solicitadas y requisitos del ensayo

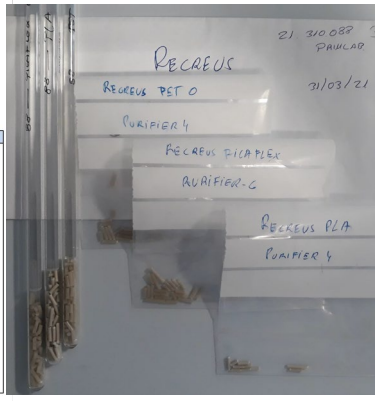
Recuerde utilizar el carácter '.' en vez de ',' en el caso de introducir valores decimales
Puede consignar un máximo de 5 lotes/líneas por solicitud

☑ Conozco los requisitos que deben cumplir las muestras para la realización de los ensayos.

Id. Muestra	Datos de la Muestra	Características del Ensayo	Resultados
1 Recreus 2 Recreus 3 Recreus Insertar elemento Total 3	Conservación T. Ambiente Estabilidad Seleccionar... Insertar elemento ¿Muestra tóxica? ○ Si ◉ No ¿Muestra peligrosa? ○ Sí ◉ No	El ensayo se realizará con 1000 mg de muestra El análisis se realizará en el equipo ____ o bien el equipo será a elección del servicio ☑ ☐ Isoterma de N2 ☑ Isoterma de CO2 ☐ a 273 K ☑ a 298 K ☐ Isoterma de Ar Condiciones de desgasificación A elección 80ºC por 20 hr ¿Recuperar muestra tras la isoterma? ○ Si ◉ No Superficie BET (m²/g) Aprox	Haga clic aquí para adjuntar un archivo

Insertar elemento

Total Muestras Solicitadas: 3



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EXPERIMENTAL

The measurement of CO2 adsorption at 298K (25ºC) is carried out using an automatic volumetric adsorption equipment of the Quantachrome brand, model Autosorb iQ located in the laboratory of Porous Texture Characterization of the SSTTI of the University of Alicante. The equipment is adjusted and verified according to the laboratory's internal procedures. A recirculating thermostatic bath is used to control the sample temperature. The samples are activated by vacuum heat treatment using the degassing unit of the Autosorb iQ (Quantachrome). The activation/degassing conditions are 80°C, 20 hours under vacuum. The sample mass used in the analysis is close to 1 g.
The analysis is carried out using a pressure table between 10-3Torr and 760Torr with an equilibration time of 12 minutes. This parameter indicates the time that the pressure must remain unchanged (within limits set by the equipment) to consider that a point of the isotherm is in equilibrium.

RESULTS

Figures 2 to 4 show the CO2 adsorption isotherms at 298K of the analyzed samples, expressed in STP Volume (cc/g) vs CO2 Absolute Pressure (Torr).

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Analysis
Operator: admin **Date:**2021/04/30
Sample ID: 1_Recreus PET 0 purefier **Filename:**

Report
Operator: admin **Date:**2021/05/04
iQ_300421E2.qps

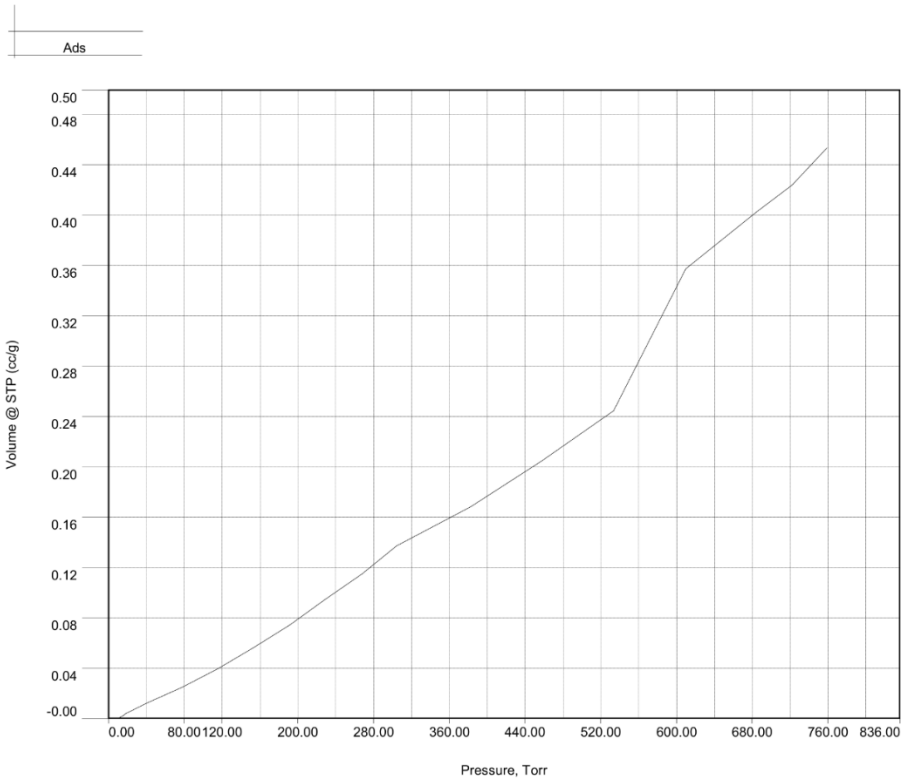
Absolute Pressure

Data Reduction Parameters

Adsorbate
Thermal Transpiration: on
Po override: 48095.00 Torr
CO2 Alicante
Molec. Wt.: 44.010

Eff. mol. diameter (D): 3.54 Å
Temperature 298.150K
Cross Section: 21.000 Å²

Eff. cell stem diam. (d): 4.0000 mm
Liquid Density: 1.023 g/cc



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Analysis
Operator: admin **Date:**2021/05/04
Sample ID: 2_Recreus PLA purefier-4 **Filename:**

Report
Operator: admin **Date:**2021/05/05
iQ_040521E1.qps

Absolute Pressure

Data Reduction Parameters

Adsorbate
Thermal Transpiration: on
Po override: 48095.00 Torr
CO2 Alicante
Molec. Wt.: 44.010

Eff. mol. diameter (D): 3.54 Å
Temperature 298.150K
Cross Section: 21.000 Å²

Eff. cell stem diam. (d): 4.0000 mm
Liquid Density: 1.023 g/cc

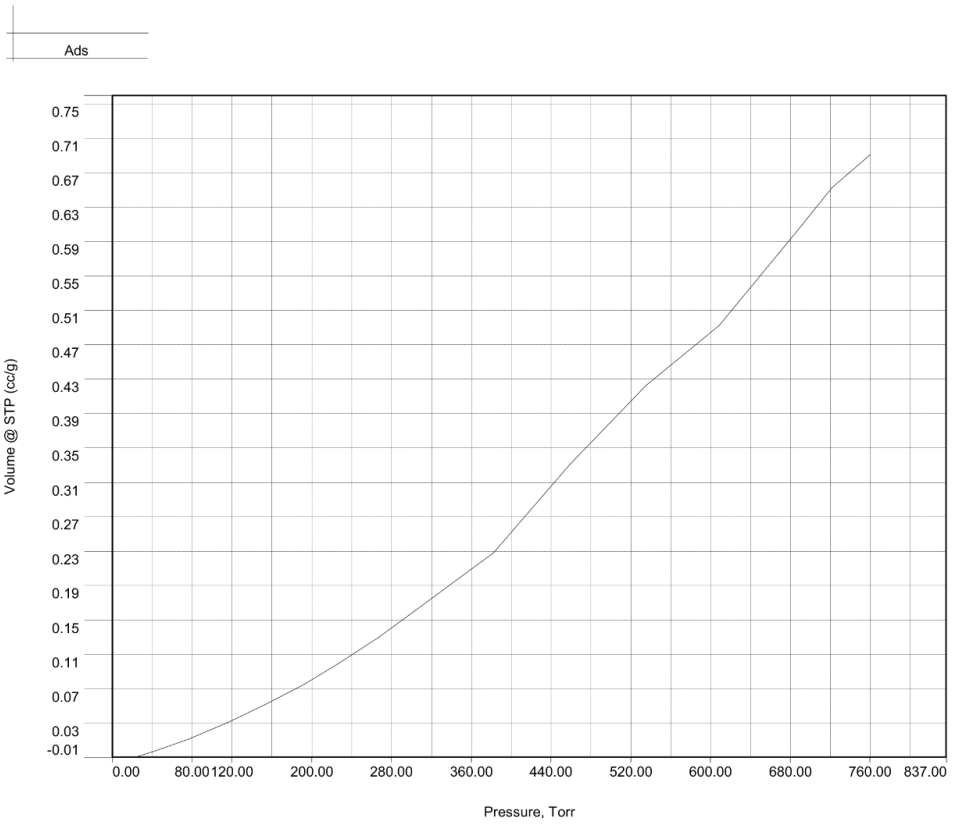

Figura 3. Muestra Recreus PLA purifier-4.

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Analysis
Operator: admin **Date:**2021/05/04
Sample ID: 3_Recreus Filaflex purifier-6 **Filename:** iQ_040521E2.qps

Report
Operator: admin **Date:**2021/05/05

Absolute Pressure

Data Reduction Parameters

Adsorbate
Thermal Transpiration: on
Po override: 48095.00 Torr
CO2 Alicante
Molec. Wt.: 44.010
Eff. mol. diameter (D): 3.54 Å
Temperature 298.150K
Cross Section: 21.000 A²
Eff. cell stem diam. (d): 4.0000 mm
Liquid Density: 1.023 g/cc

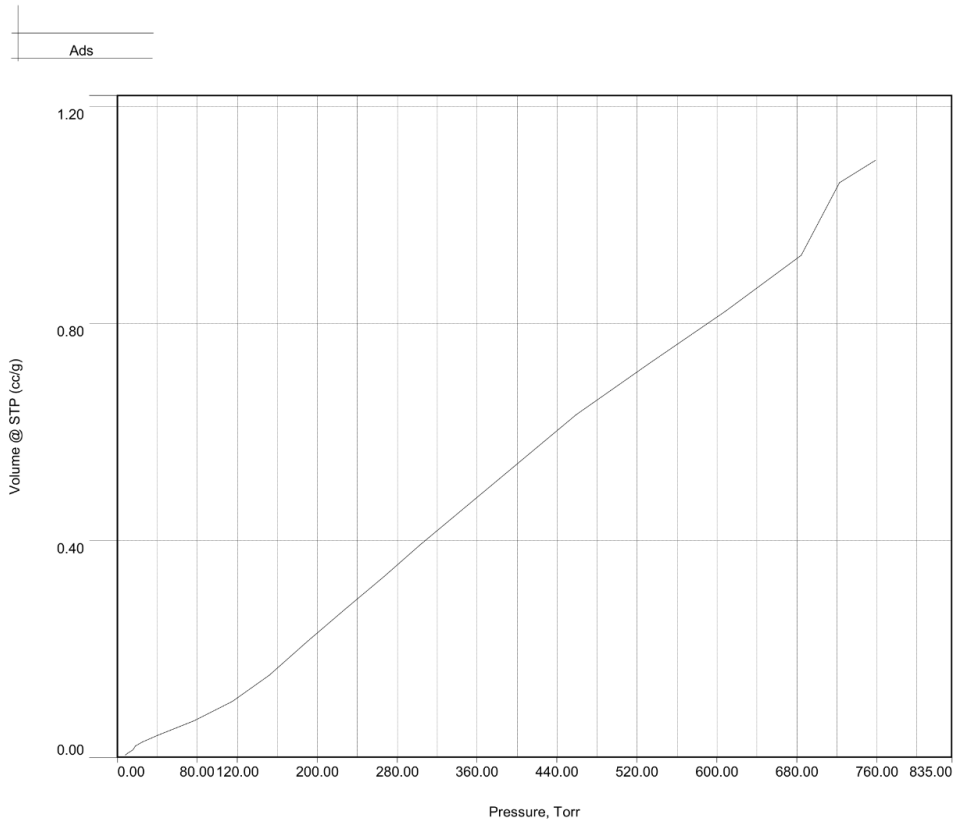

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Figura 4. Muestra Recreus FilaFlex purifier-6.

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CO2 adsorption results at 298K.

Table 1. Amount of CO2 adsorbed at 1 atm (760 Torr)

Muestra	V_{STP}/g sample (cm^3/g)	g of CO2/ g sample	% weight
Recreus PET G purifier-4	0,4522	0,0009	0,089
Recreus PLA purifier-4	0,6908	0,0014	0,136
Recreus FilaFlex purifier-6	1,1004	0,0022	0,216

Alicante, 5 de mayo de 2021

Technician	Unit Manager	Manager SSTTI
Firmado digitalmente por SARA|LLOPIS|VERDU Fecha: 2021.05.05 13:51:48 +02'00'	Firmado digitalmente por ION SUCH BASAÑEZ - NIF:52766717W Fecha: 2021.05.05 13:45:55 +02'00'	Firmado digitalmente por María José Muñoz Guillena - UNIVERSIDAD DE ALICANTE (R: Q0332001G) Fecha: 2021.05.06 09:03:48 +02'00'
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