

Mezcla peso (g)	Catalizador		Conversiones de Ácido				
	Nombre	peso (mg)	CPCA	CHCA	BA	C5H11- CHCA	C7H15- BA
2.4870	None		16.00	15.00	14.50	11.30	7.00
2.5261	Ni/Al ₂ O ₃	25.80	5.00	5.70	15.00	10.70	4.80
2.5357	Ni/SiO ₂	25.50	21.50	18.90	15.40	16.00	8.70
2.5511	NA-Cat-3	25.50	70.80	70.50	91.20	92.40	97.50
2.3755	Cu/Al ₂ O ₃	27.20	0.00	0.00	5.50	2.40	5.30
2.3806	Cu/SiO ₂	25.00	12.80	10.50	10.40	7.10	3.50
2.4960	NA-Cat-4	25.40	86.50	83.90	92.40	93.20	98.00
2.5432	NA-Cat-1	25.50	39.00	46.70	78.80	81.60	92.50

*CPCA ácido ciclopentanocarboxílico. CHCA ácido ciclohexanocarboxílico BA ácido benzoico

(Técnica Previa)

FIGURA 1

Figura 2

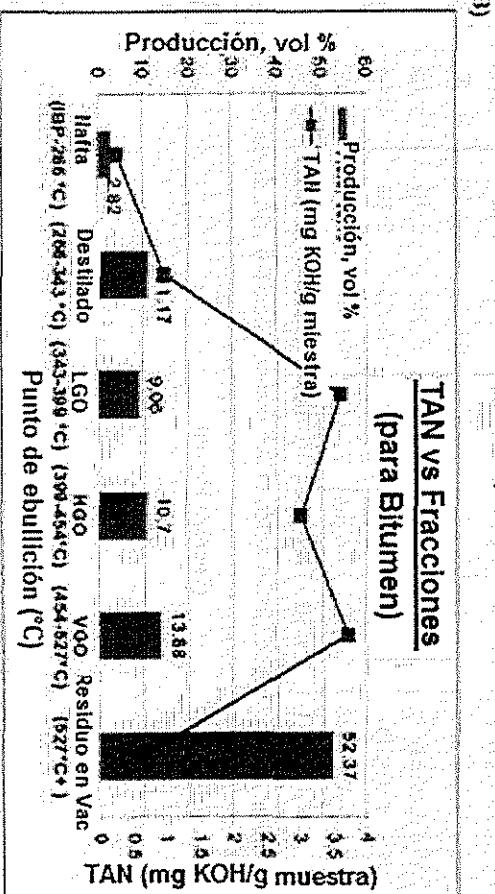
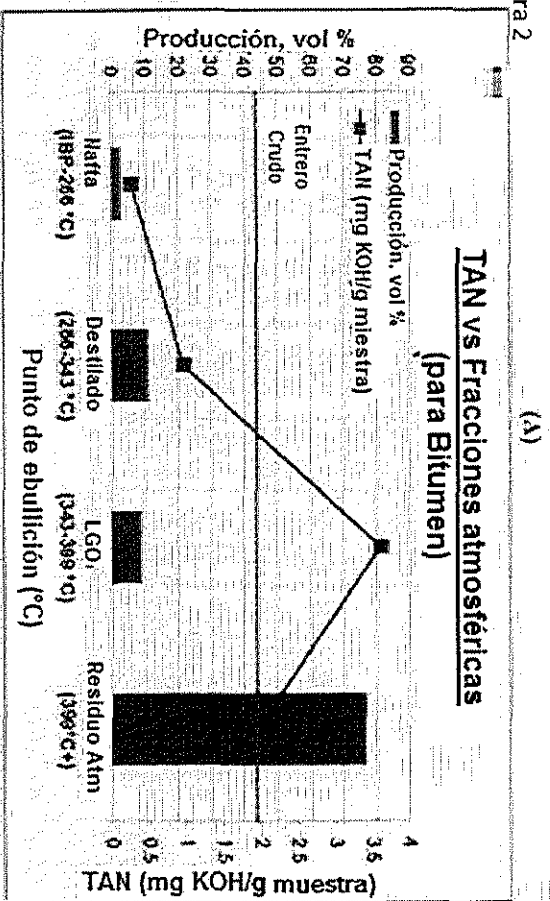


FIGURA 2

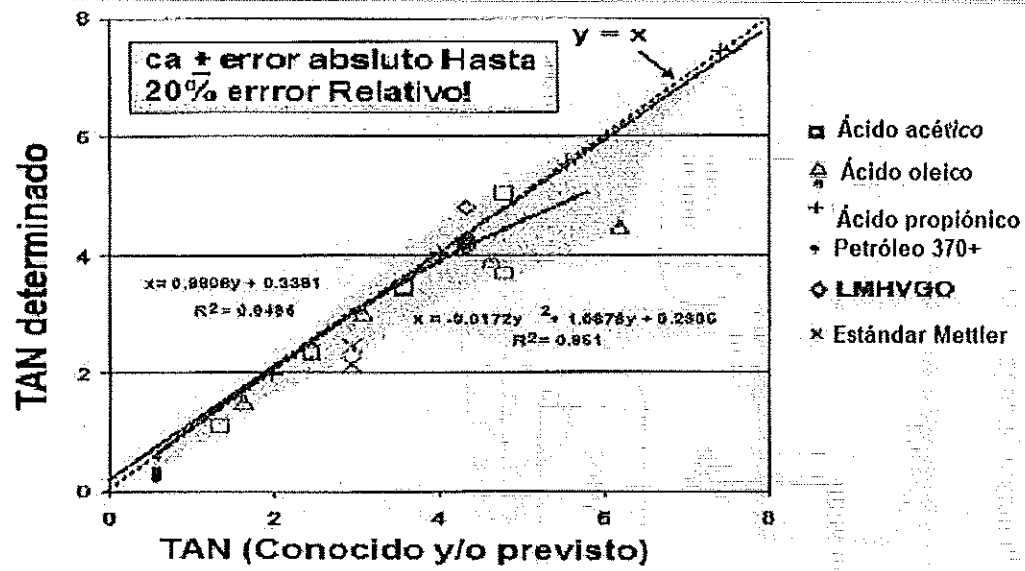
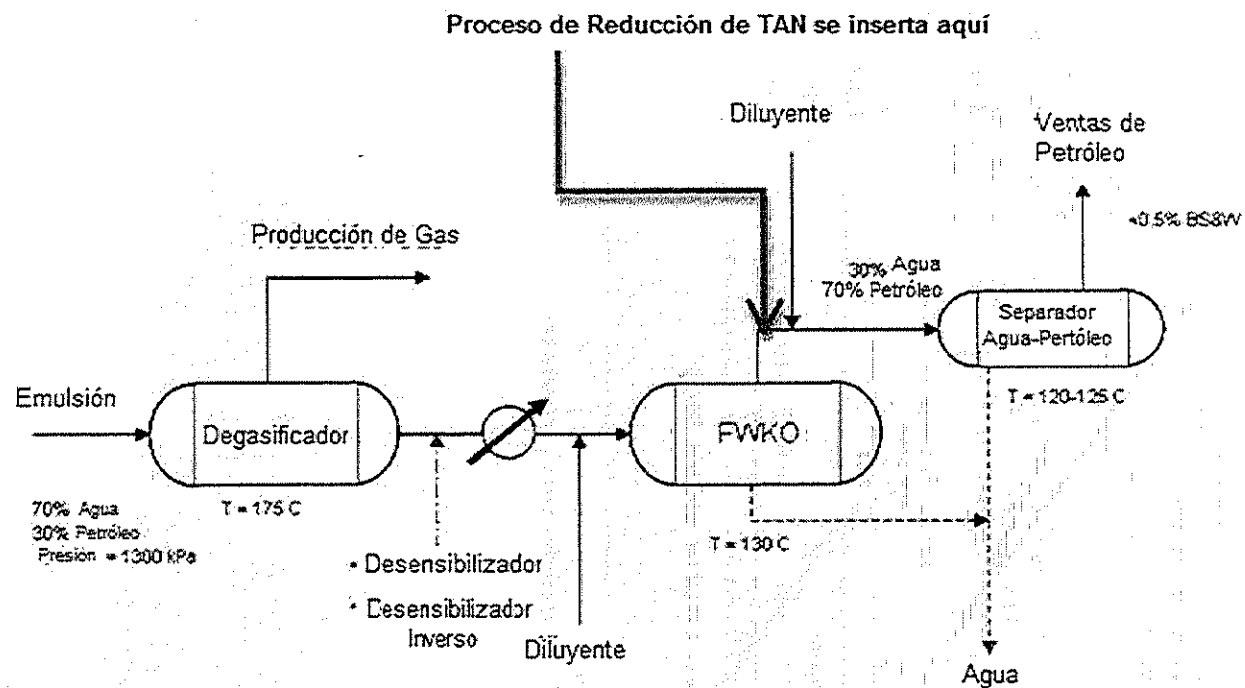


FIGURA 3

FIGURA 4



Aquí Se Puede Implementar Un Proceso De Mejora Parcial

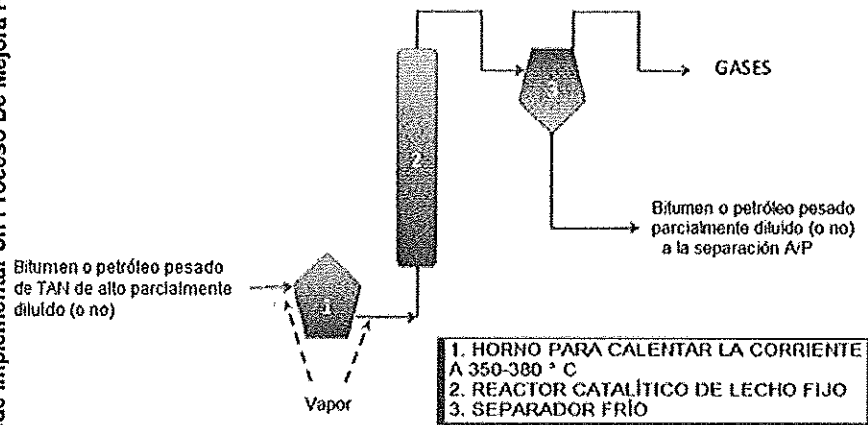


FIGURA 5

Muestra de TAN de Bitumen

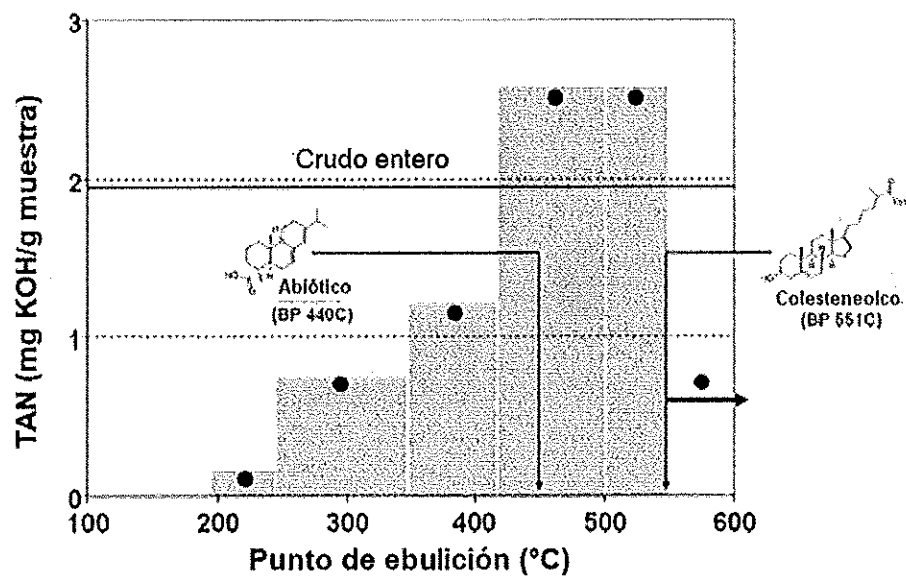


FIGURA 6

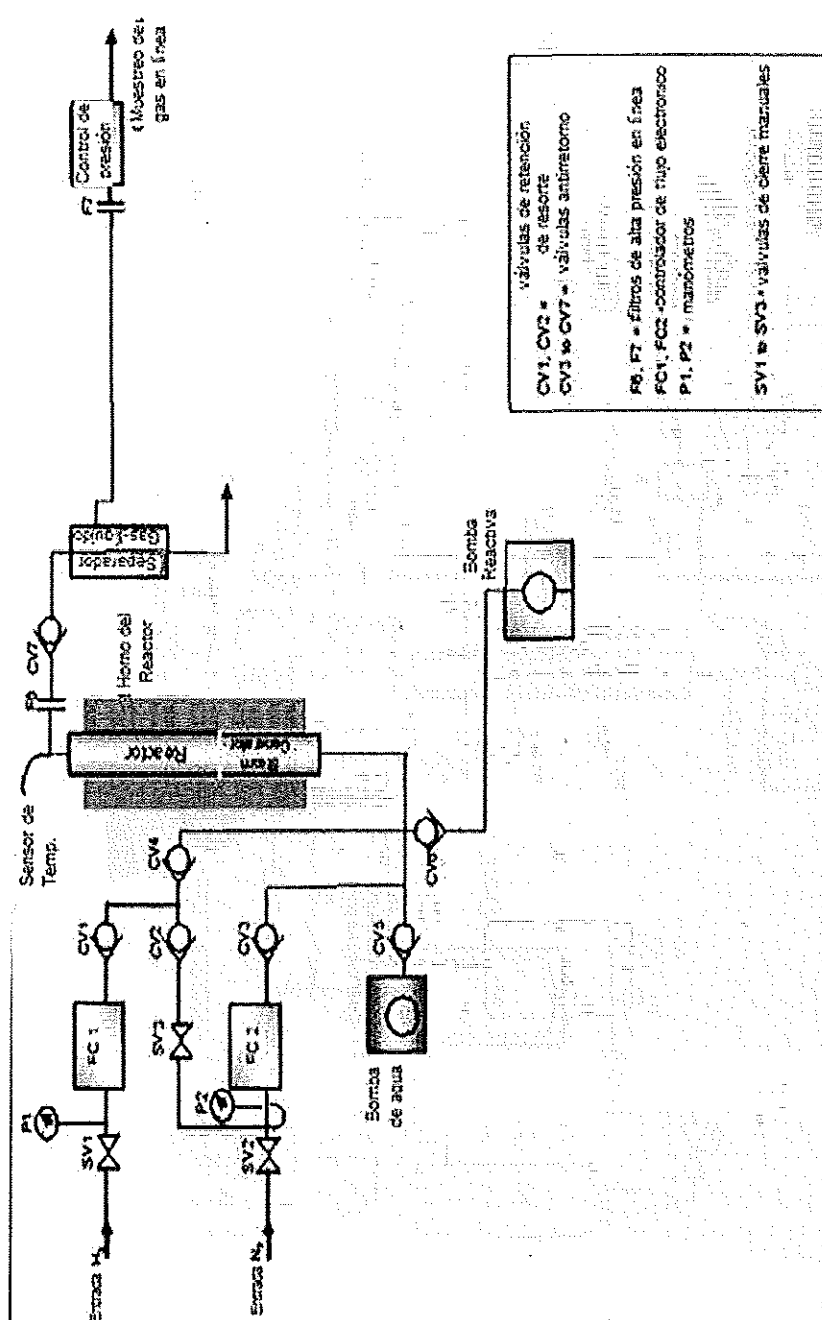
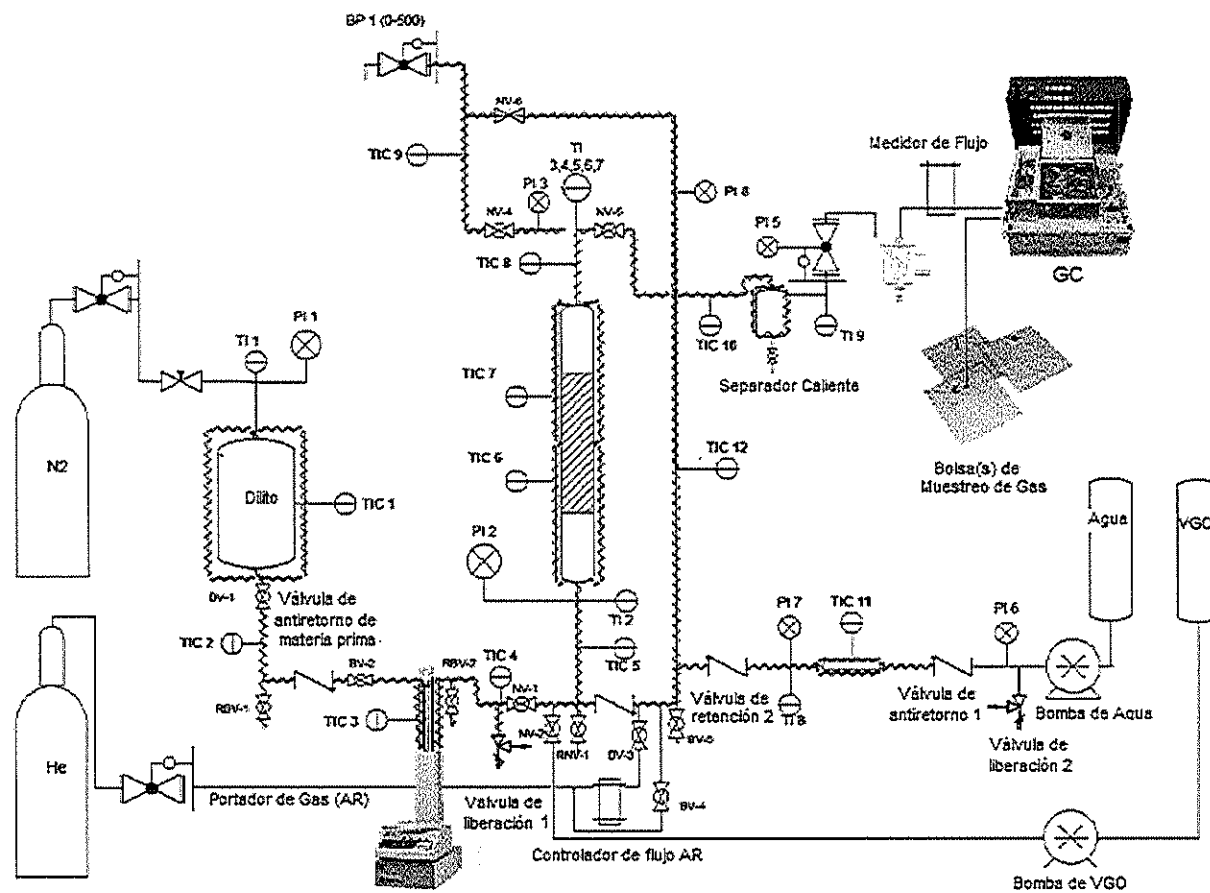


FIGURA 7

FIGURA 8



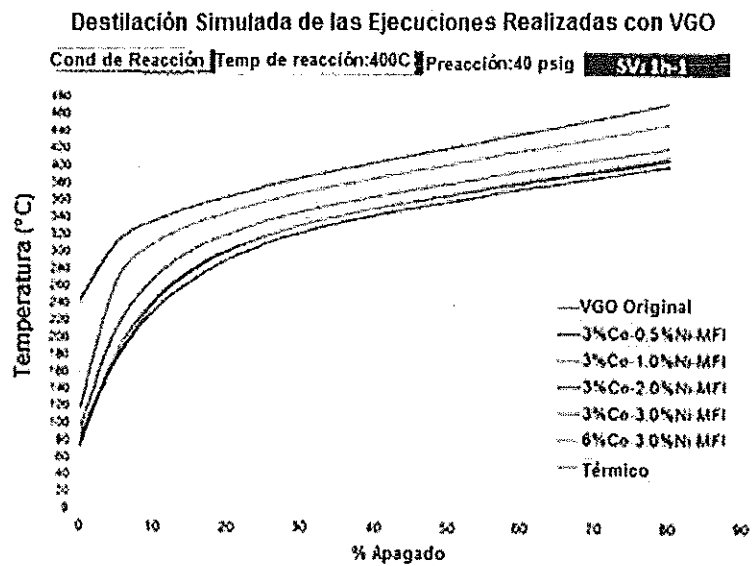


FIGURA 9

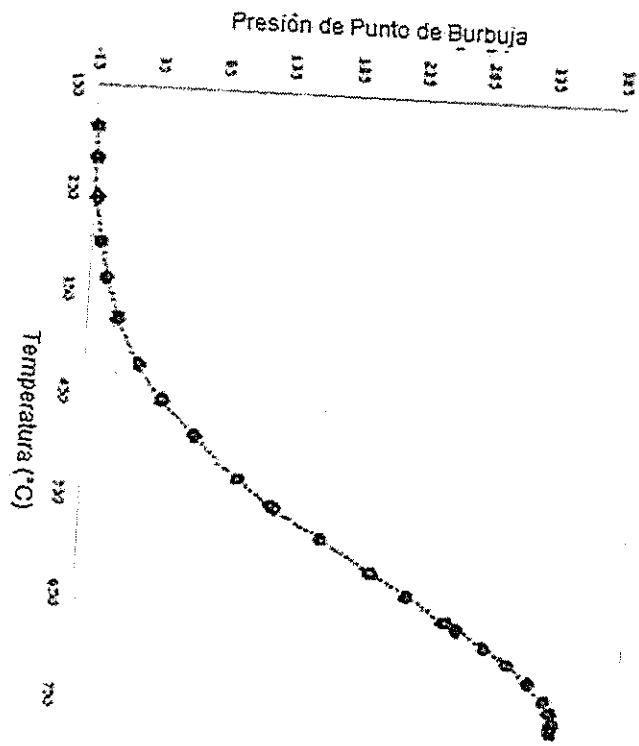


FIGURA 10

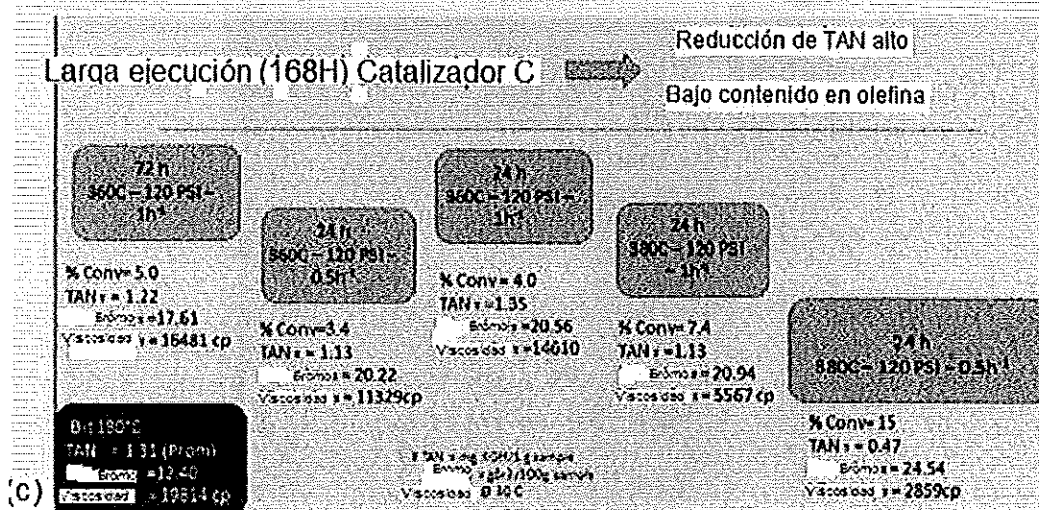
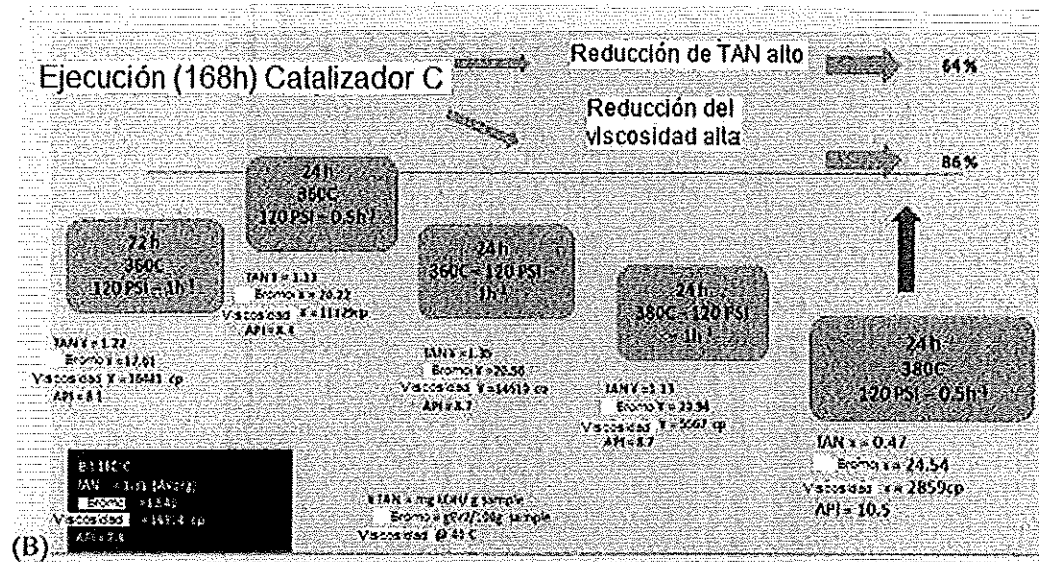
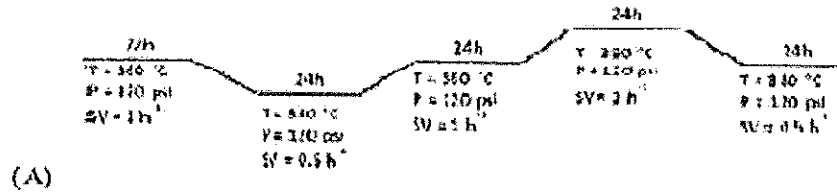


FIGURA 11

FIGURA 12

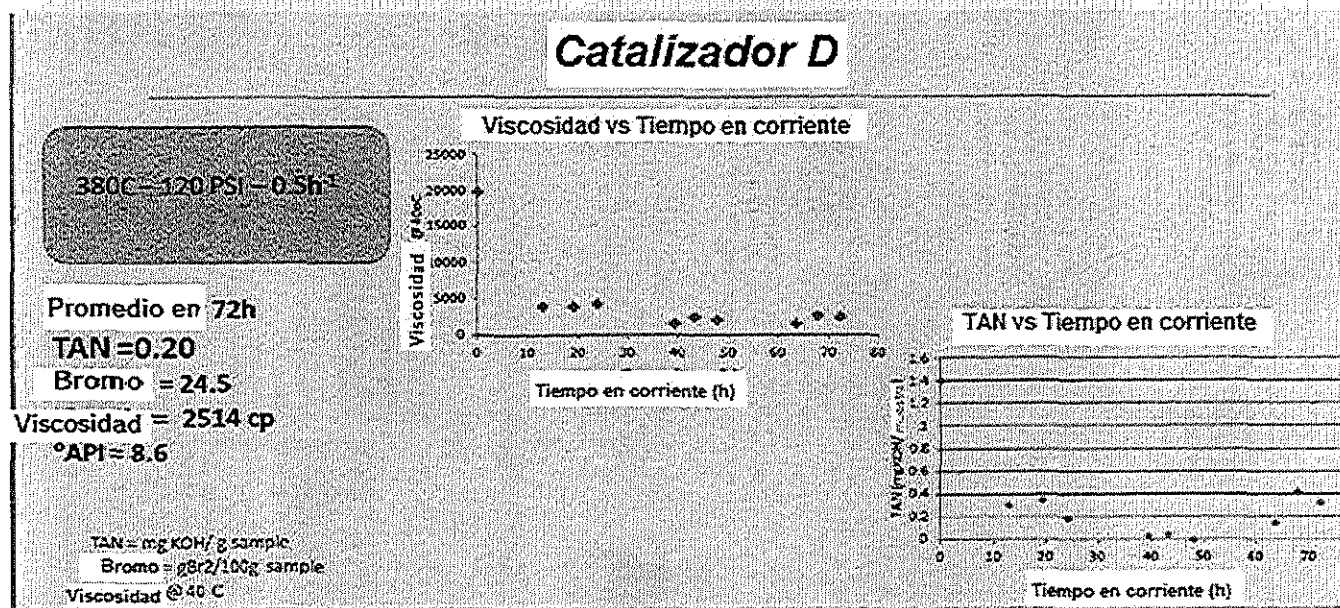


FIGURA 13

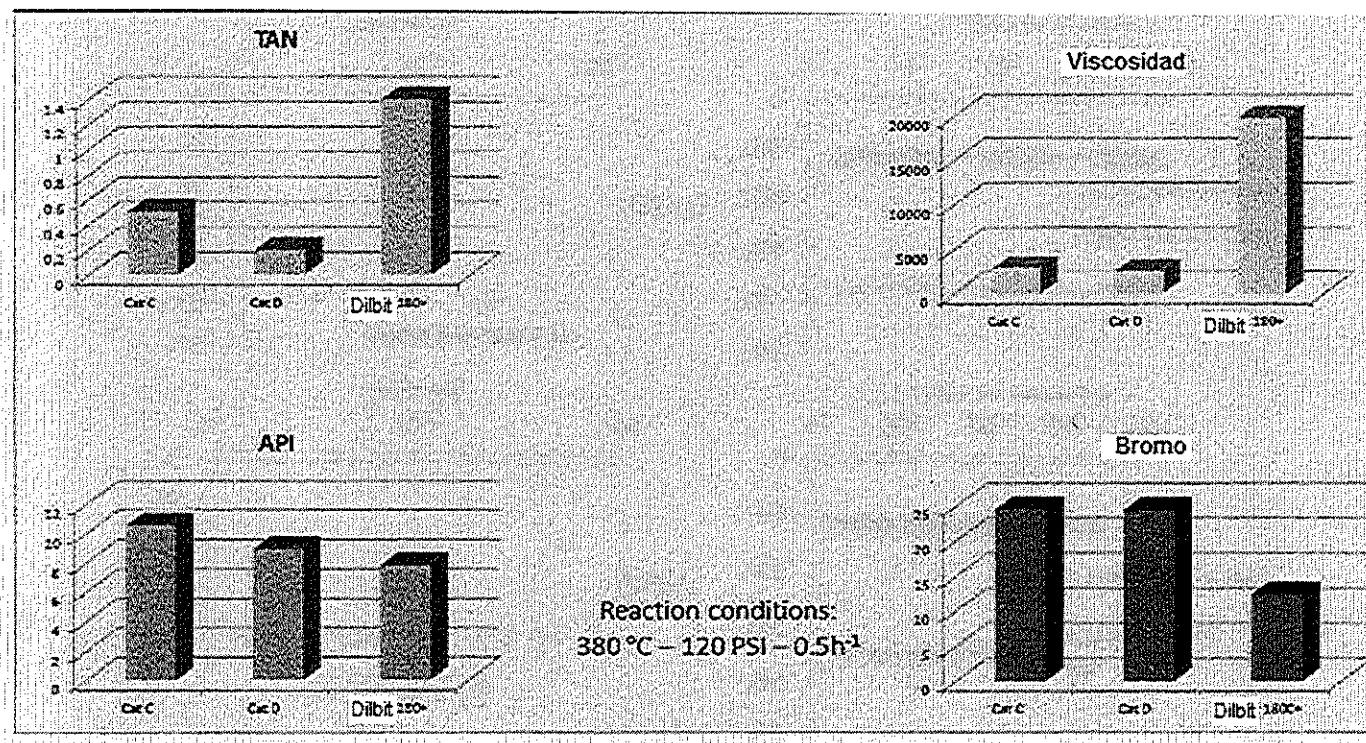
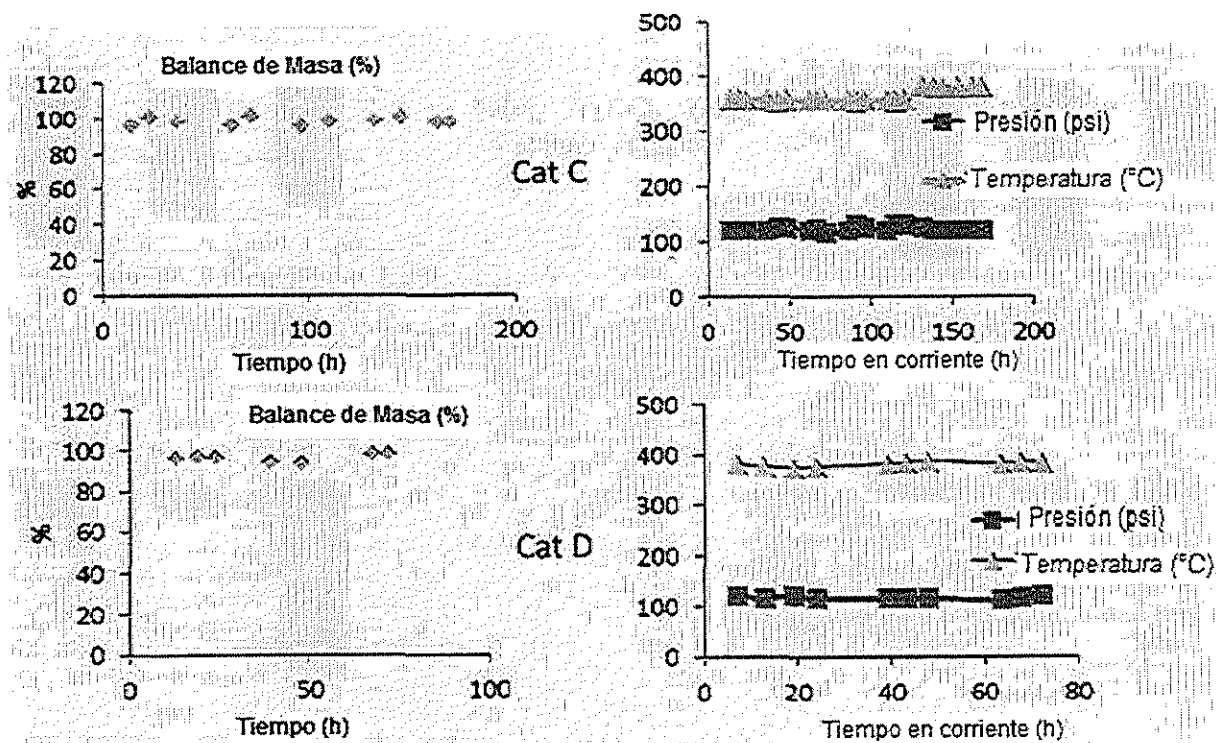
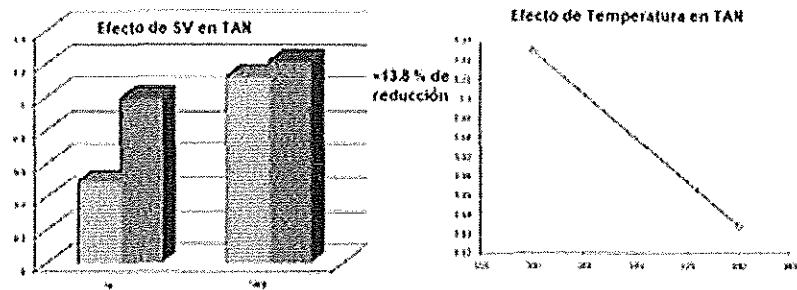


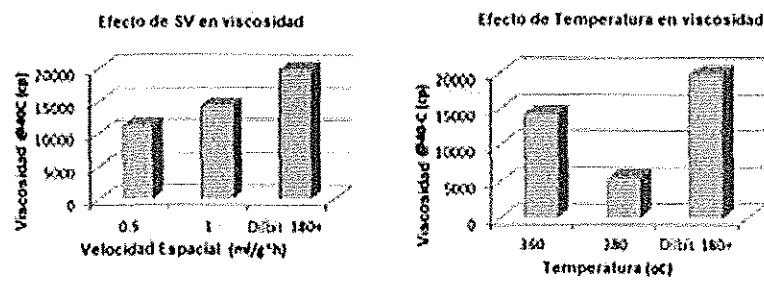
FIGURA 14



(A)



(B)



(C)

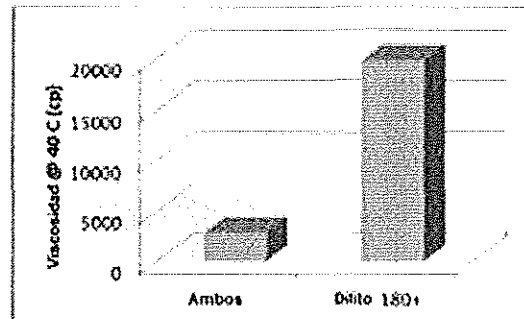
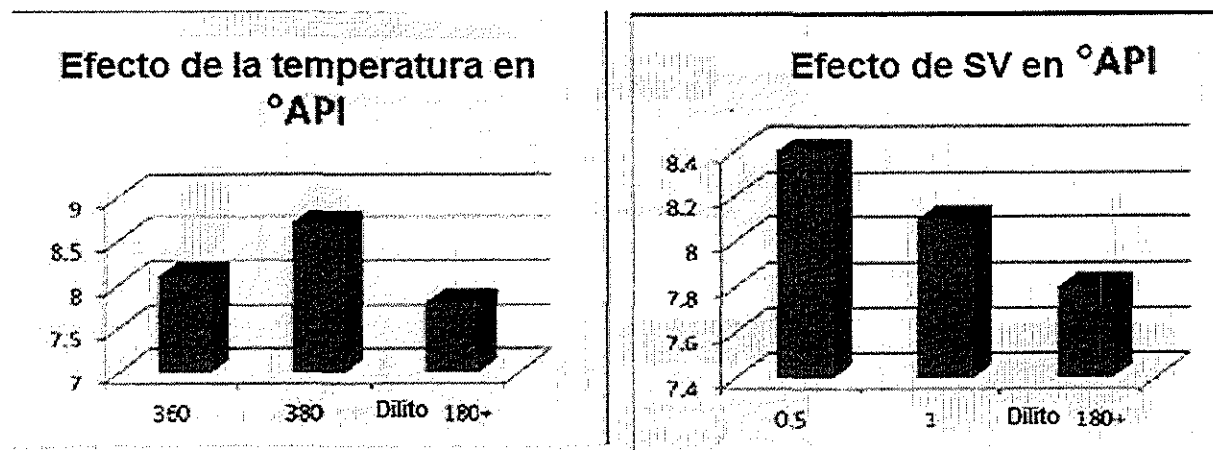


FIGURA 15

FIGURA 16



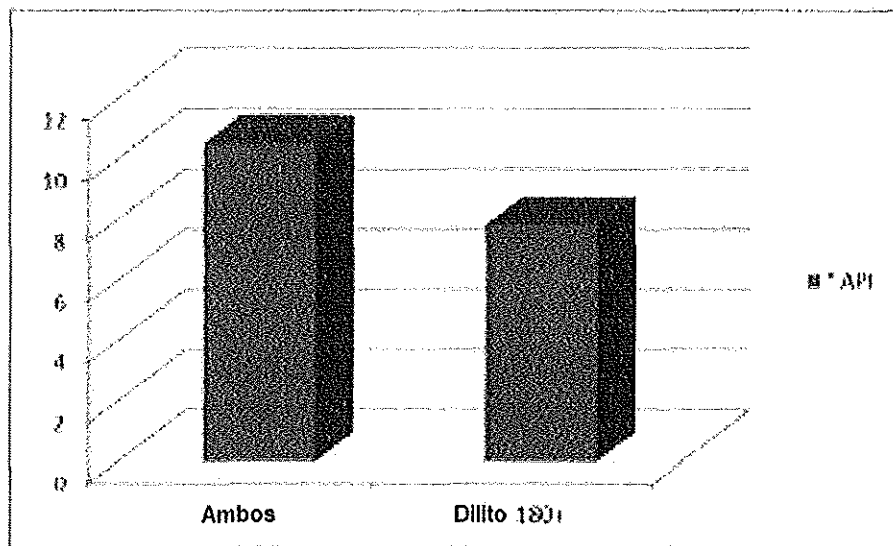


FIGURA 17

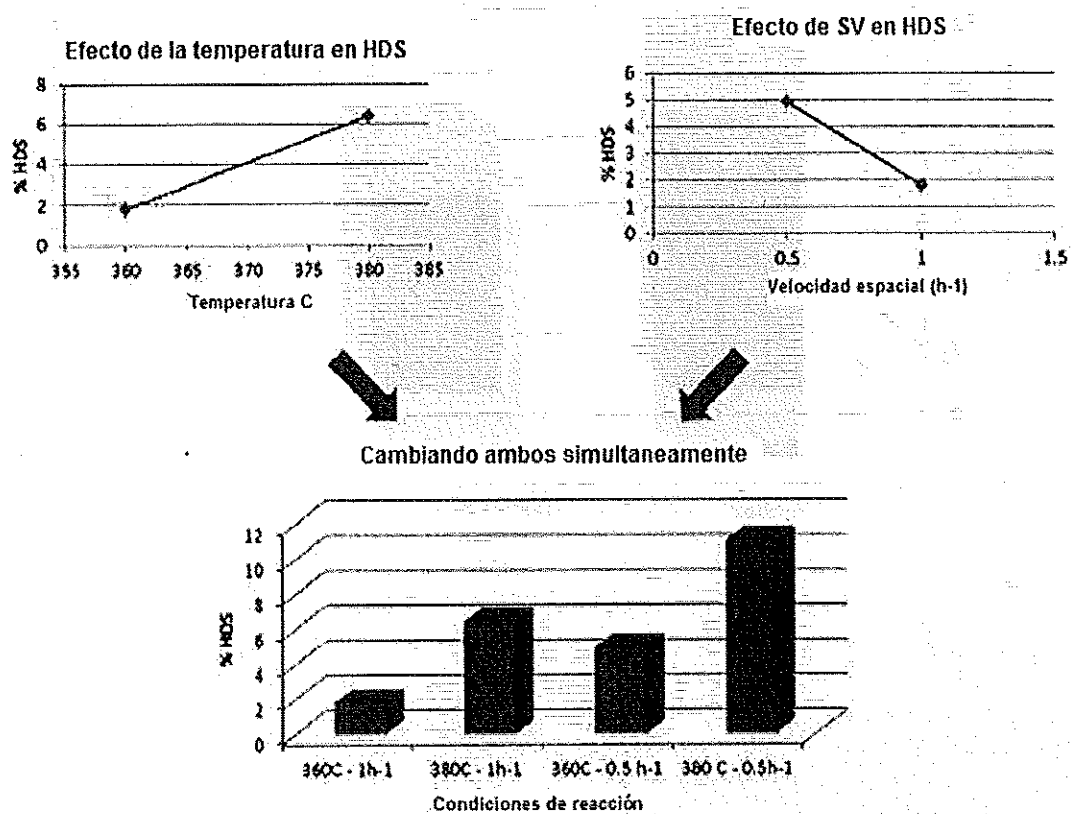


FIGURA 18

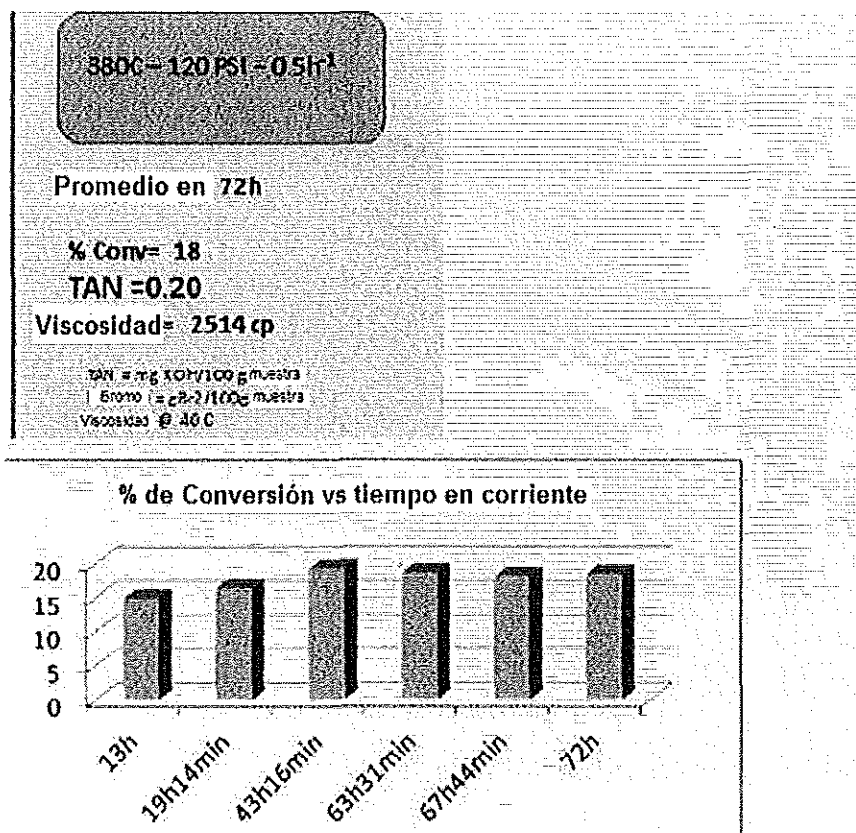


FIGURA 19

Reproducibilidad

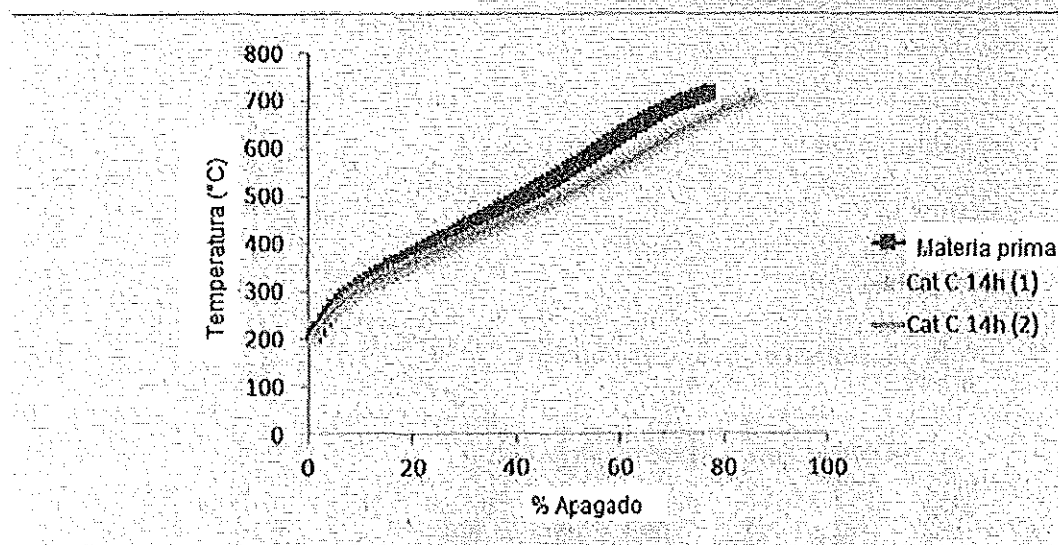
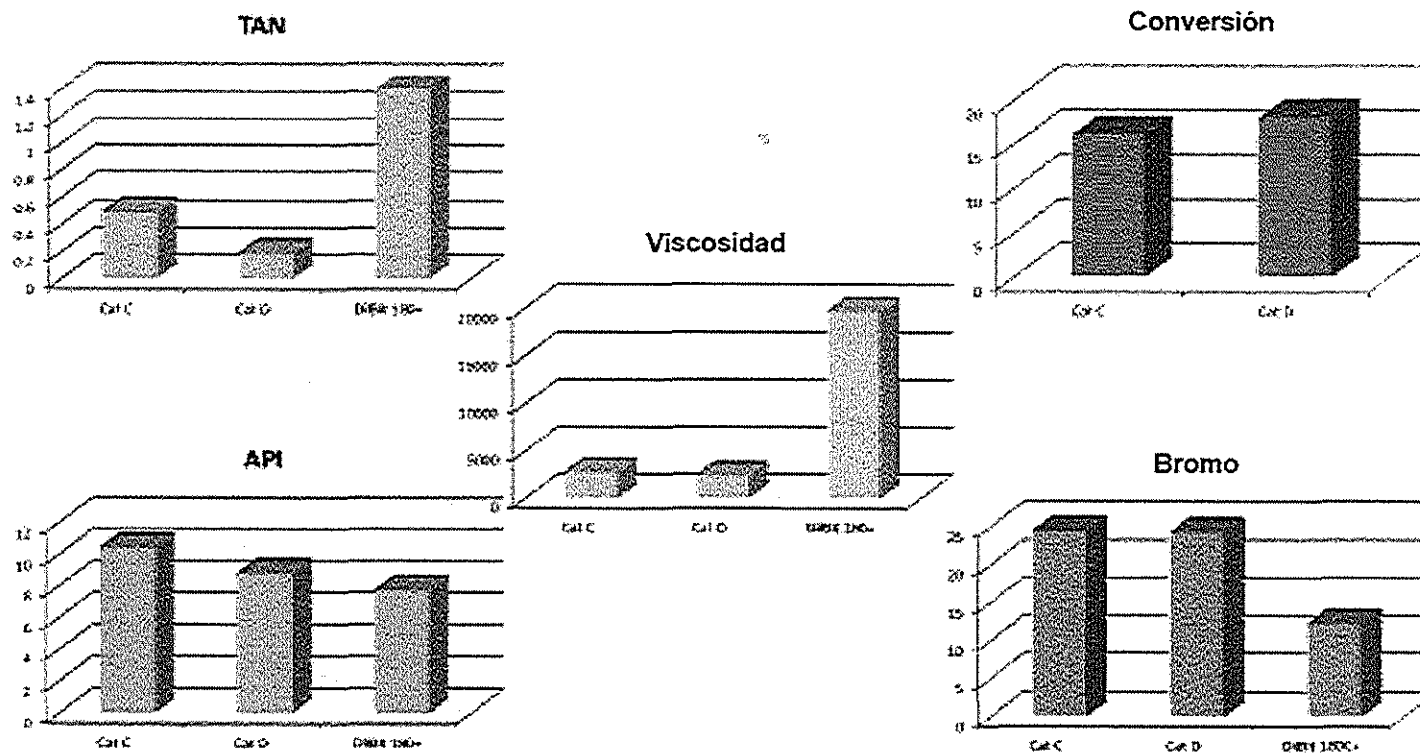
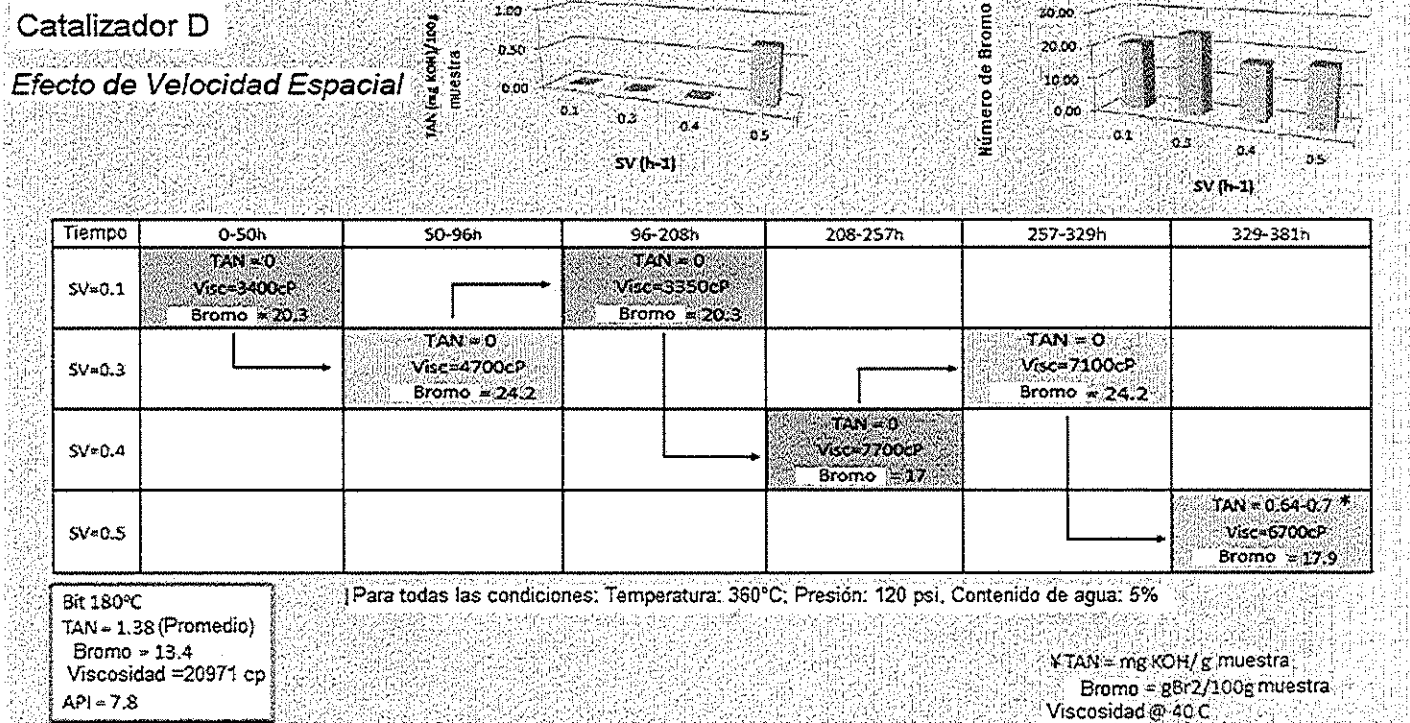


FIGURA 20

FIGURA 21





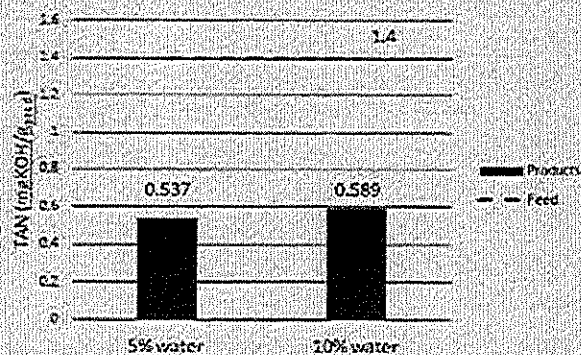
Catalizador D

Efecto del Contenido de Agua

Condiciones:

Temperatura Presión Velocidad Espacial

360°C 120psi 0.5h⁻¹



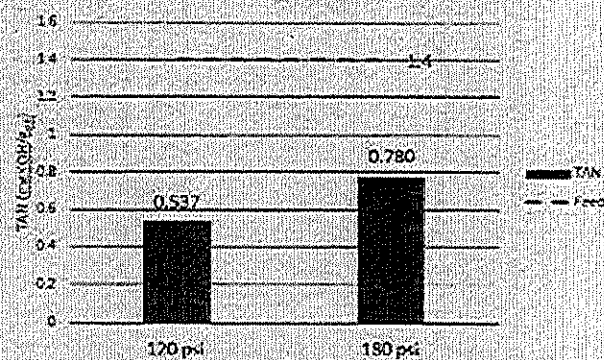
	5% V Agua	10% V Agua	Materia prima
Bromo	14.5	17.0	13.4
Viscosidad	5,300	5,600	22,000
API	9.5	9.9	7.8

Efecto de la Presión

Condiciones:

Temperatura Cont de Agua Velocidad Espacial

360°C 5% 0.5h⁻¹



	120psi	180psi	Materia prima
Bromo	14.5	14.2	13.4
Viscosidad	5,300	5,600	22,000
API	9.5	9.6	7.8

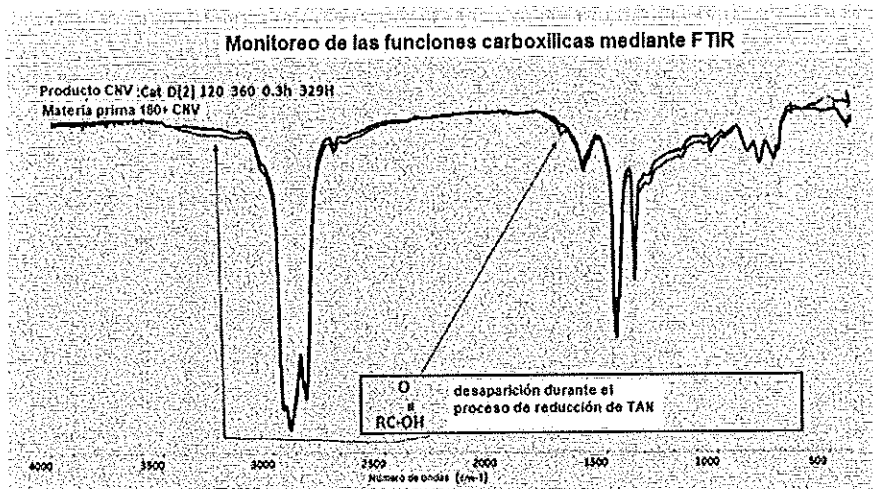
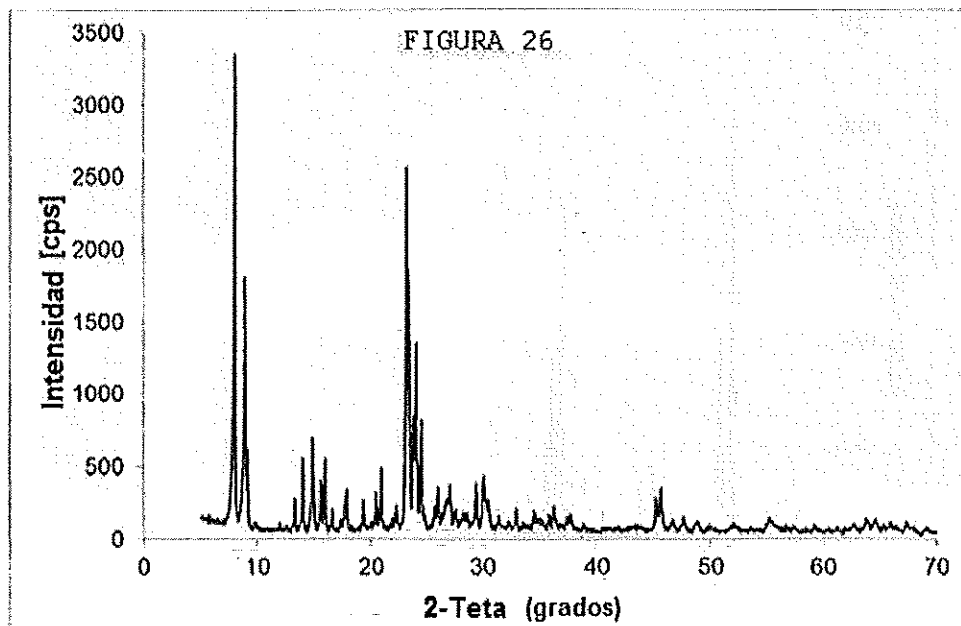
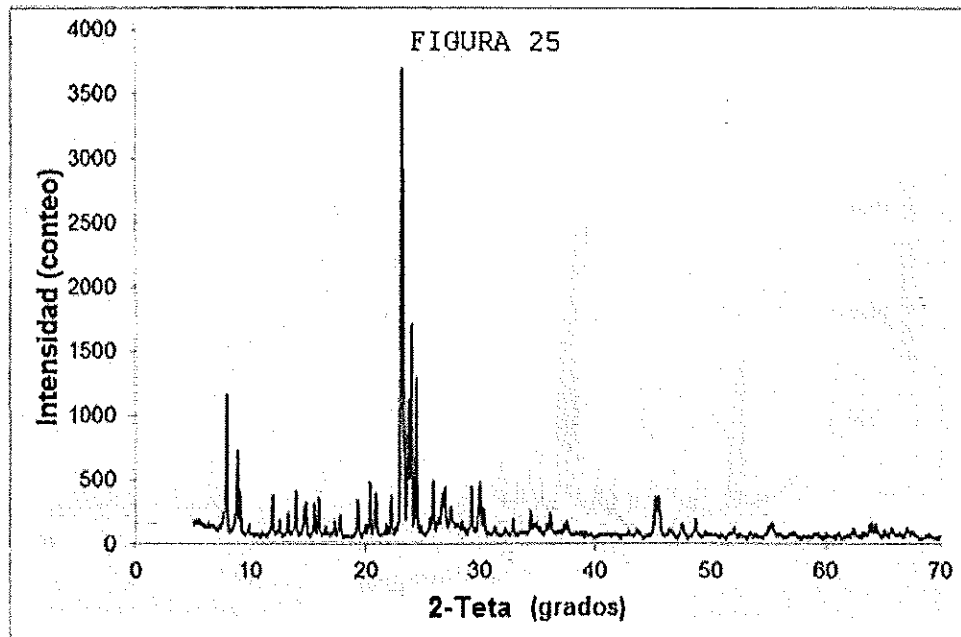


FIGURA 24



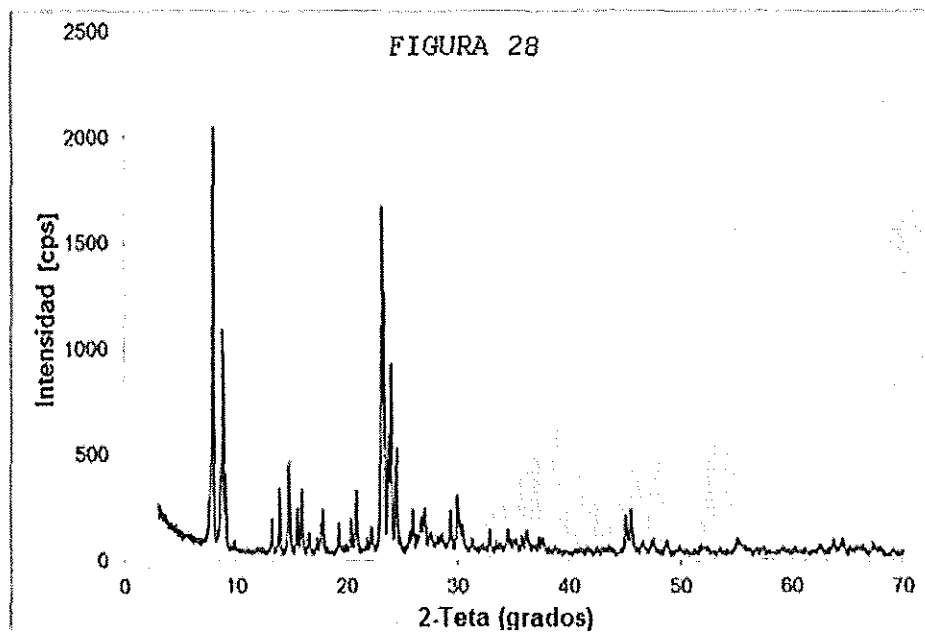
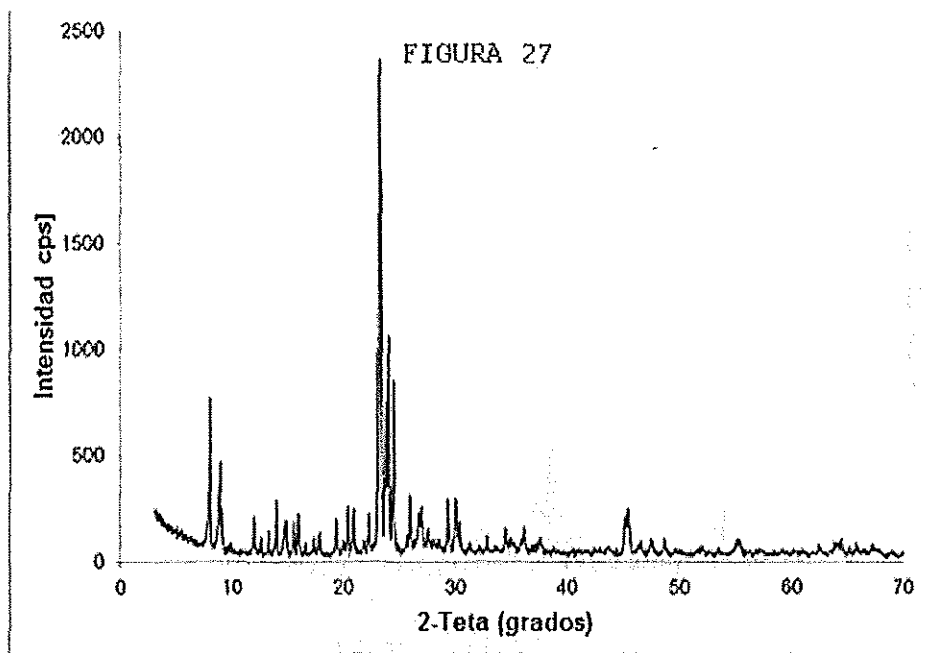


FIGURA 29

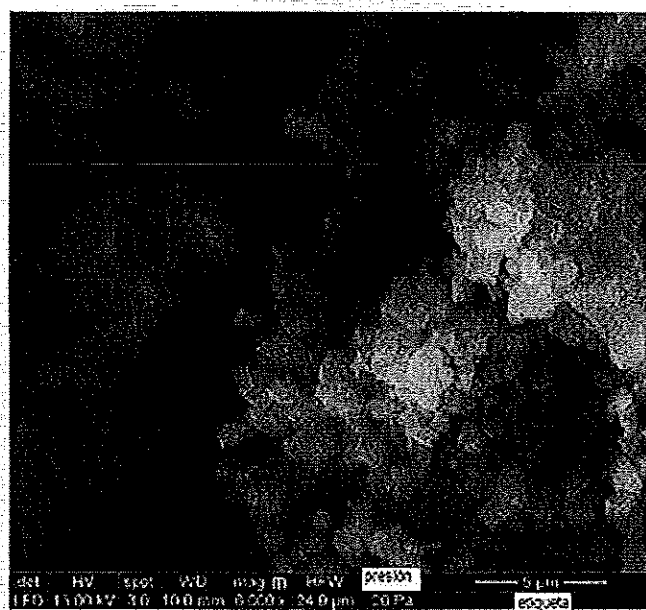


FIGURA 30



FIGURA 31

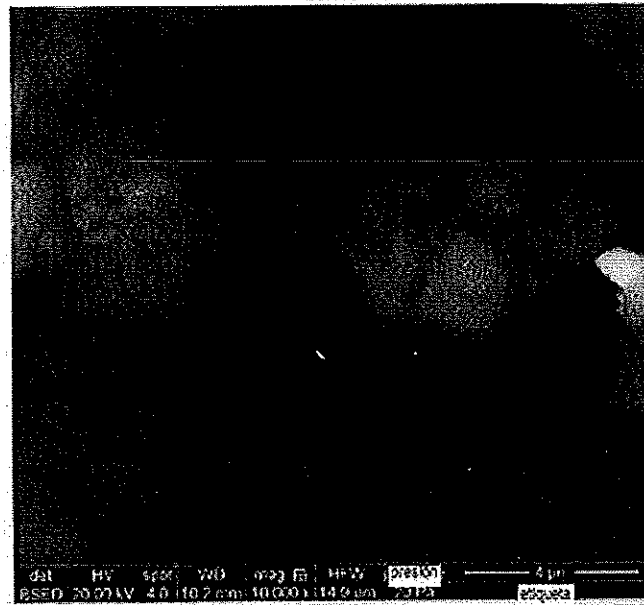
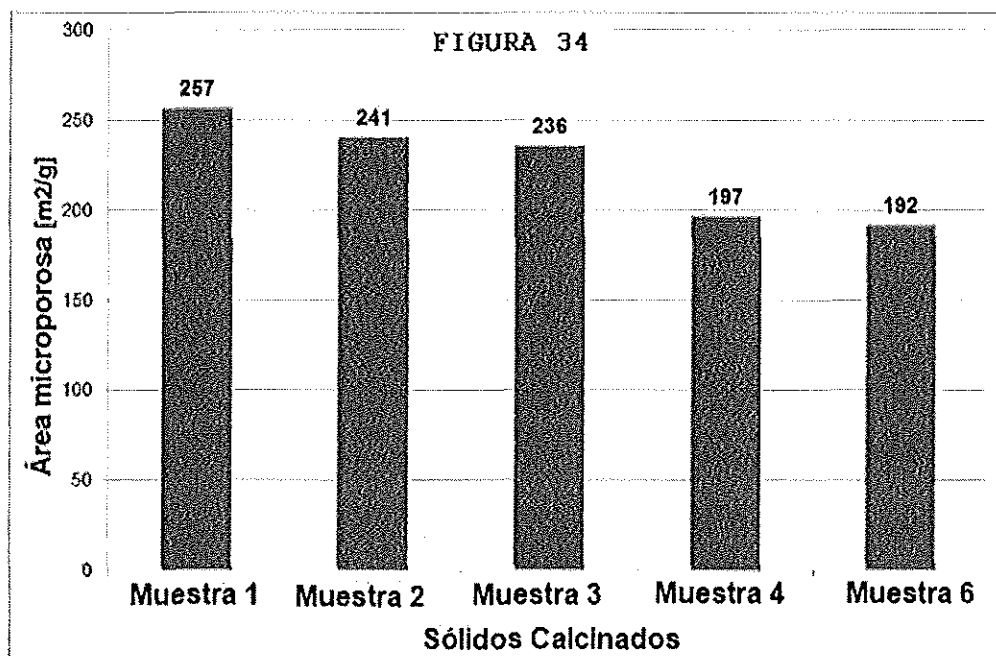
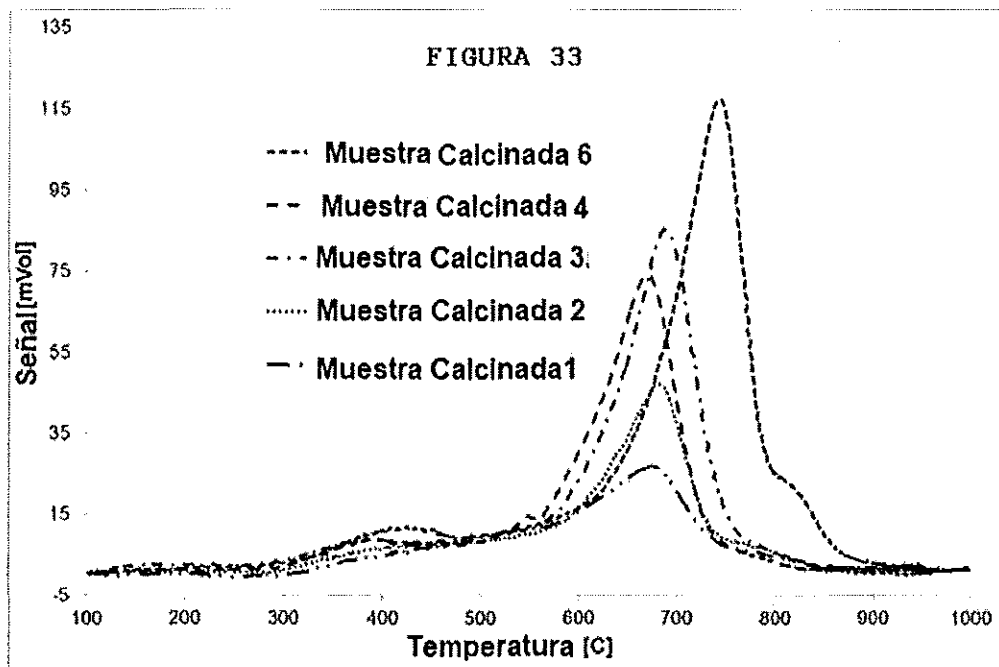


FIGURA 32





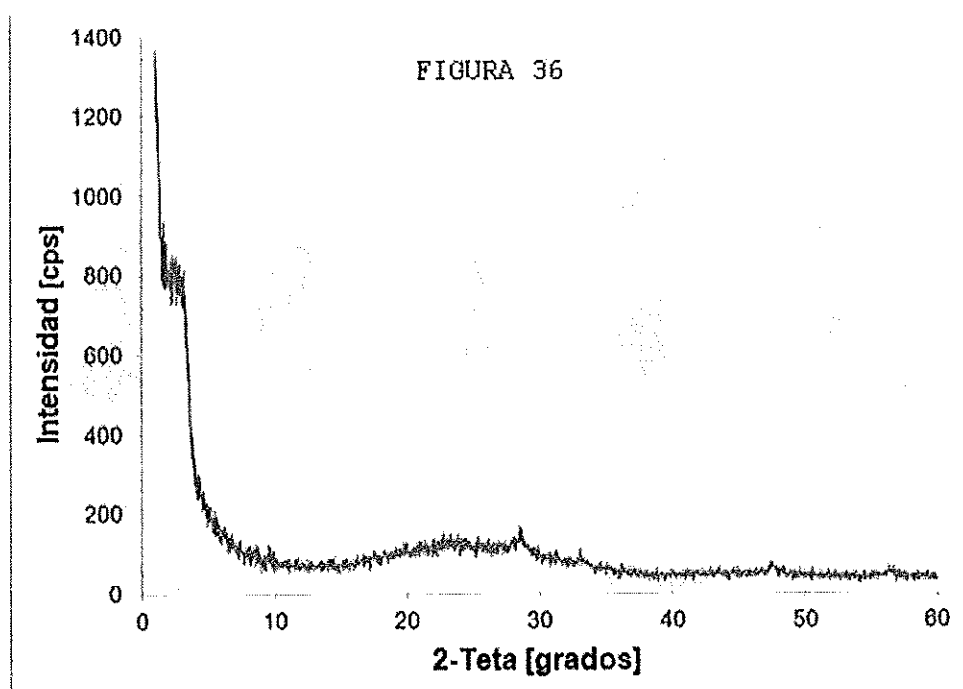
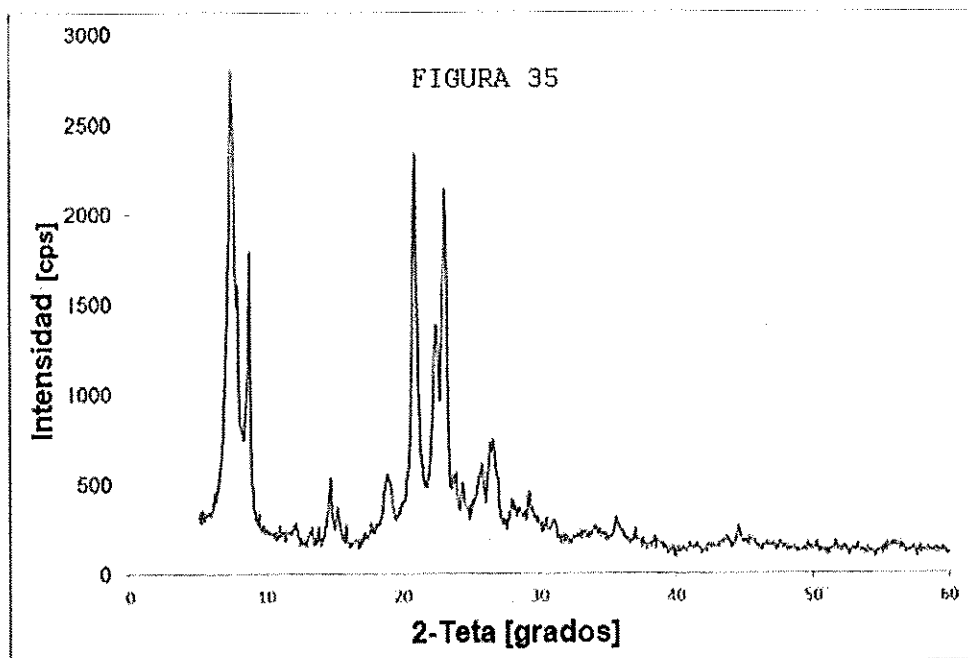


FIGURA 37

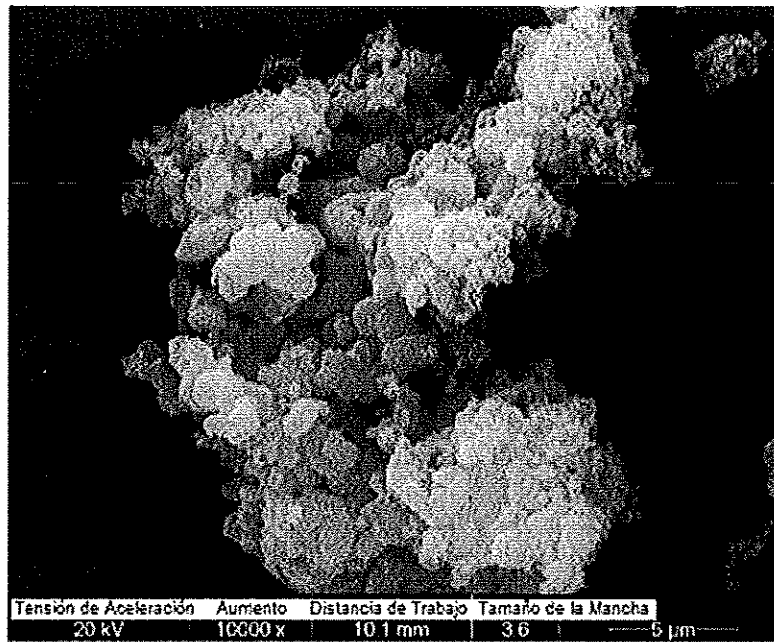
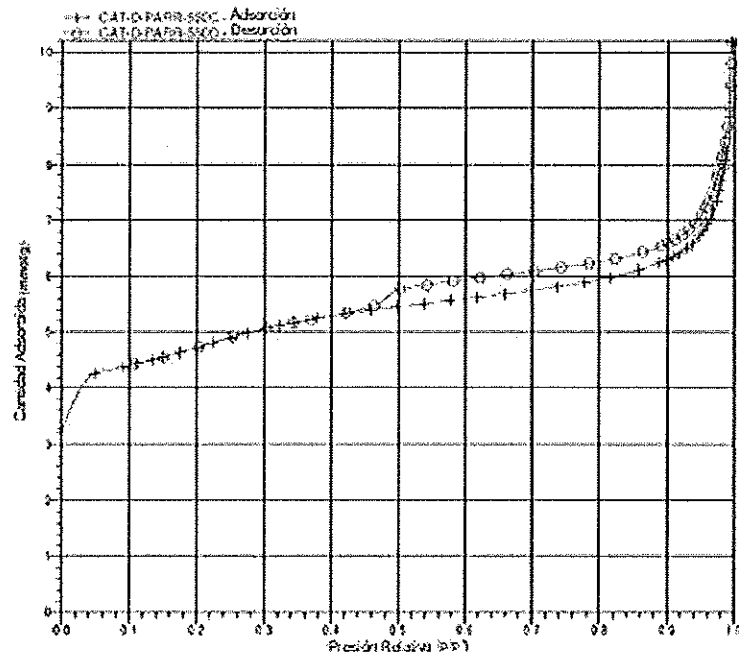
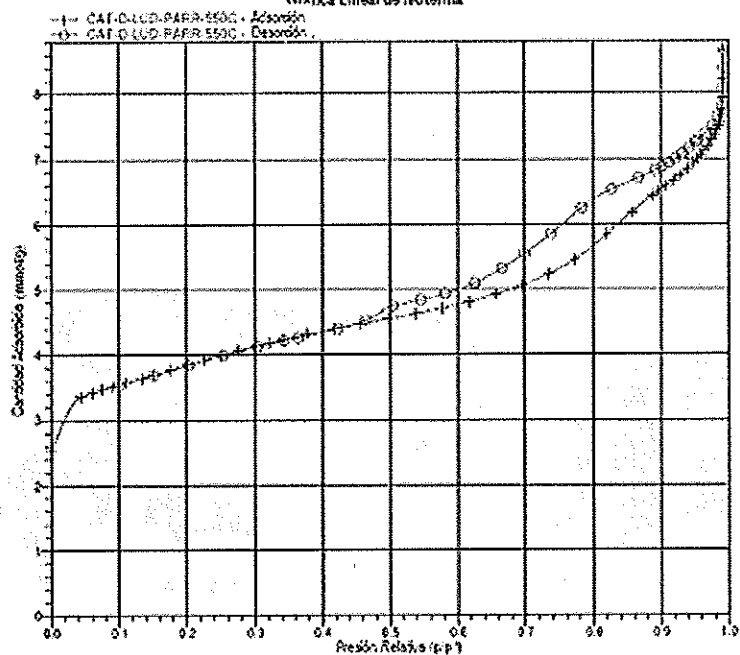
FIGURA 38
Gráfica Lineal de isoterma

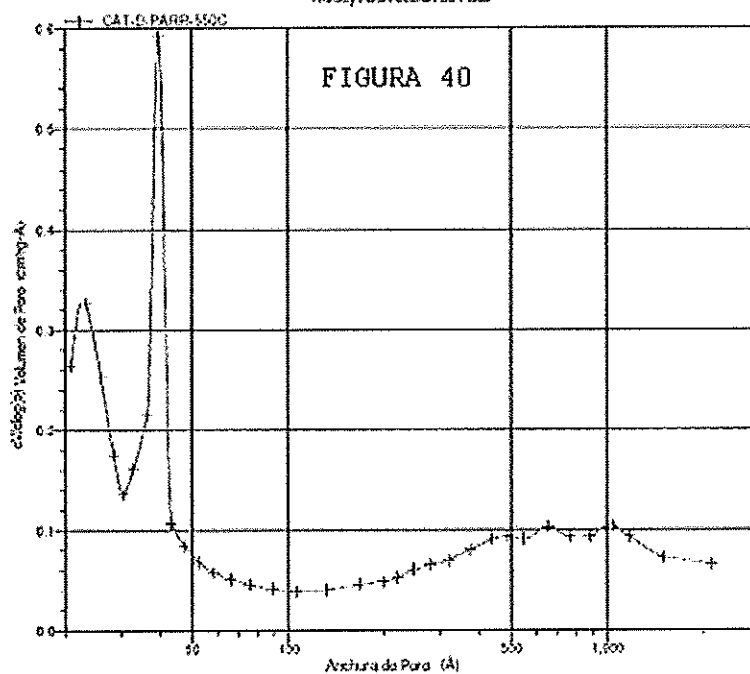
FIGURA 39

Gráfica Lineal de Isoterma



Desorción BJH d'Vidiog(p) Volumen de Poro
 Halsey: Corrección de Faus

FIGURA 40



Desorción BJH $dV/d\log(p)$ Volumen de Poro
Halsey : Corrección de Faas

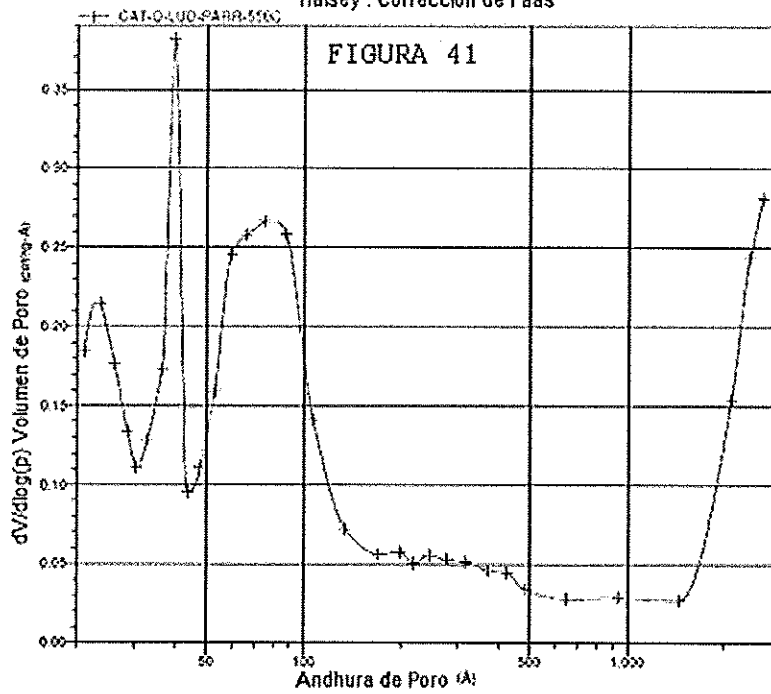
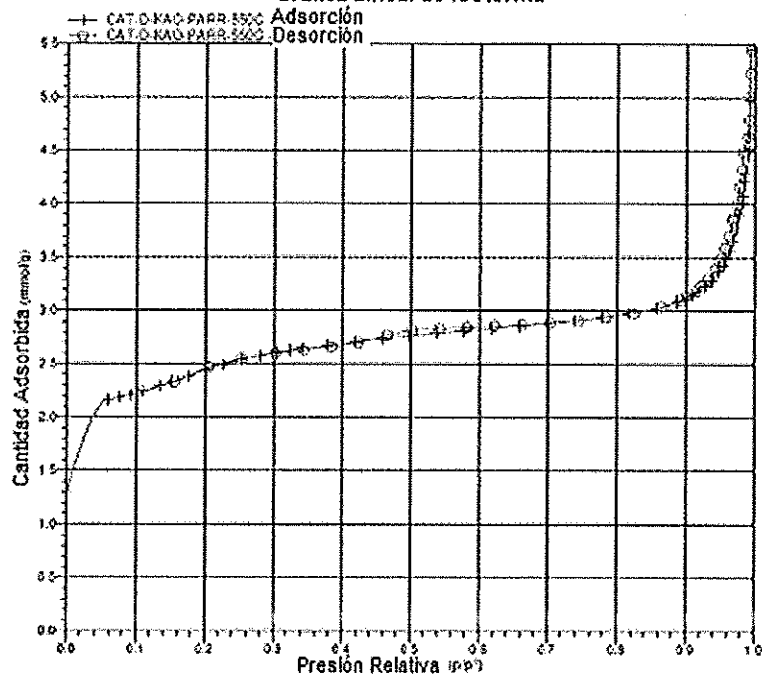
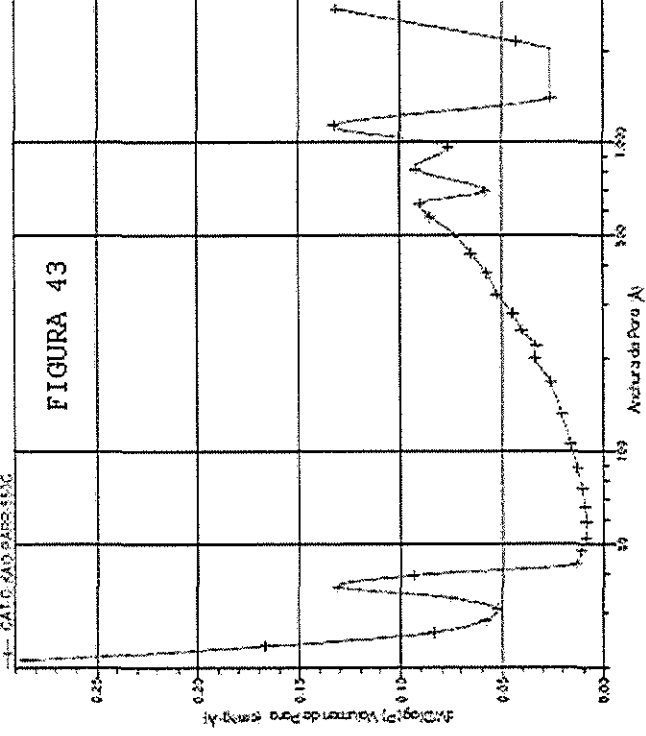


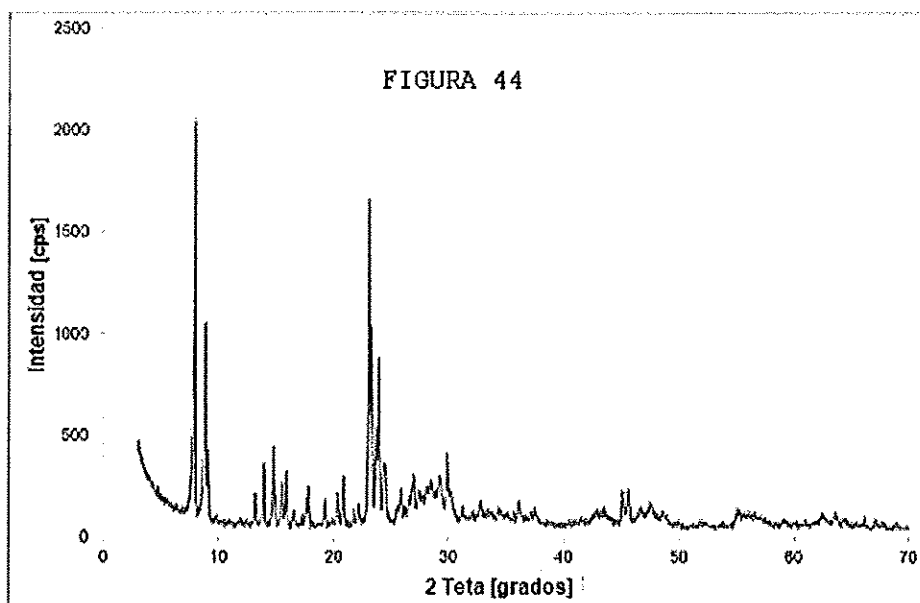
FIGURA 42

Gráfica Lineal de Isotherma



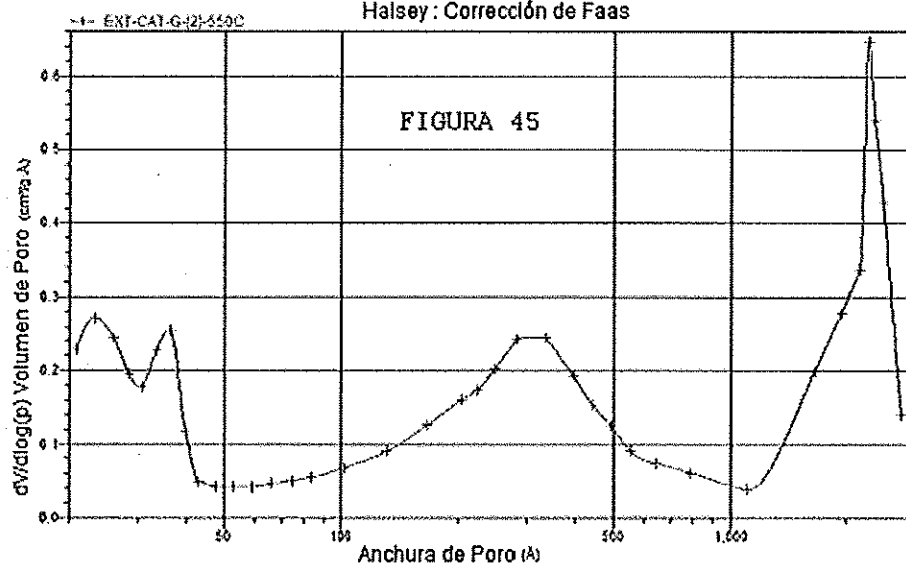
Diferença B/G e V(Diag) Volume do Poro
Hidrog: Correção de Fazio





Descripción BJH $dV/d\log(p)$ Volumen de Poro

Halsey : Corrección de Faas



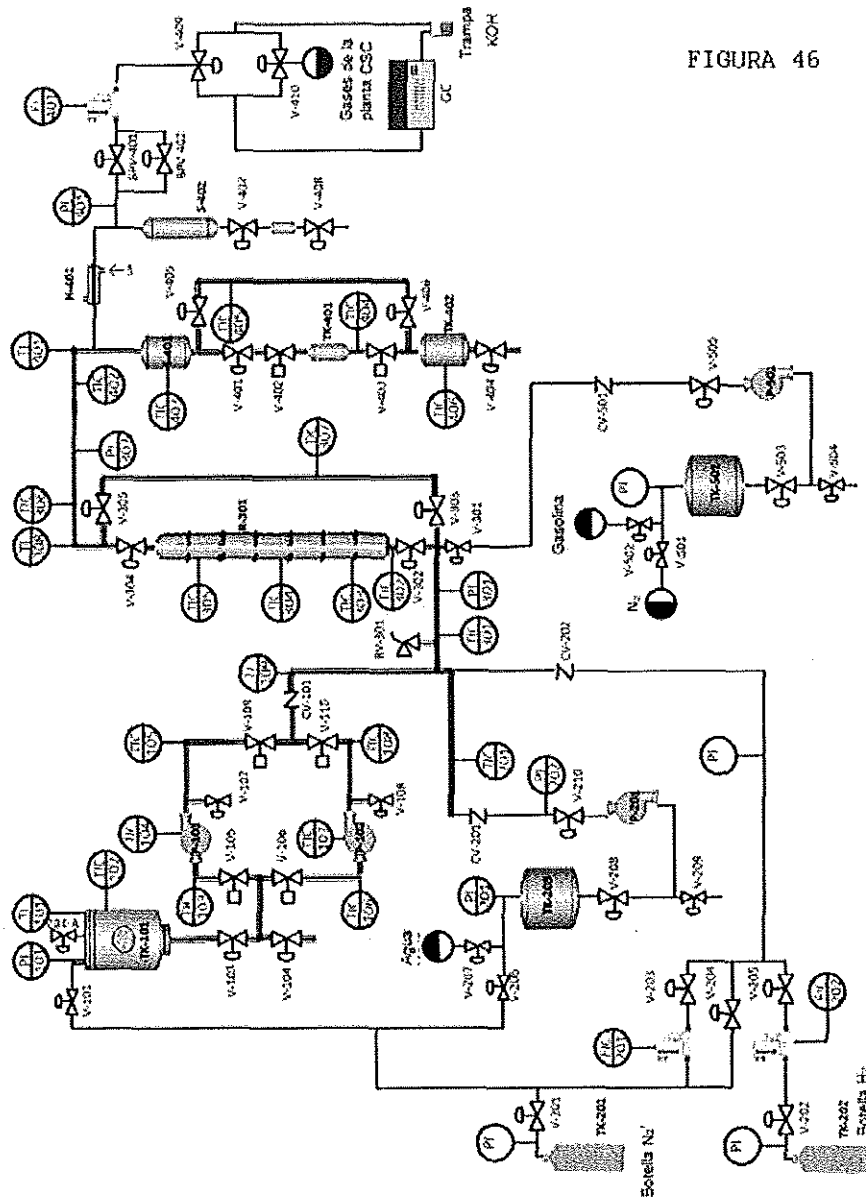


FIGURA 47

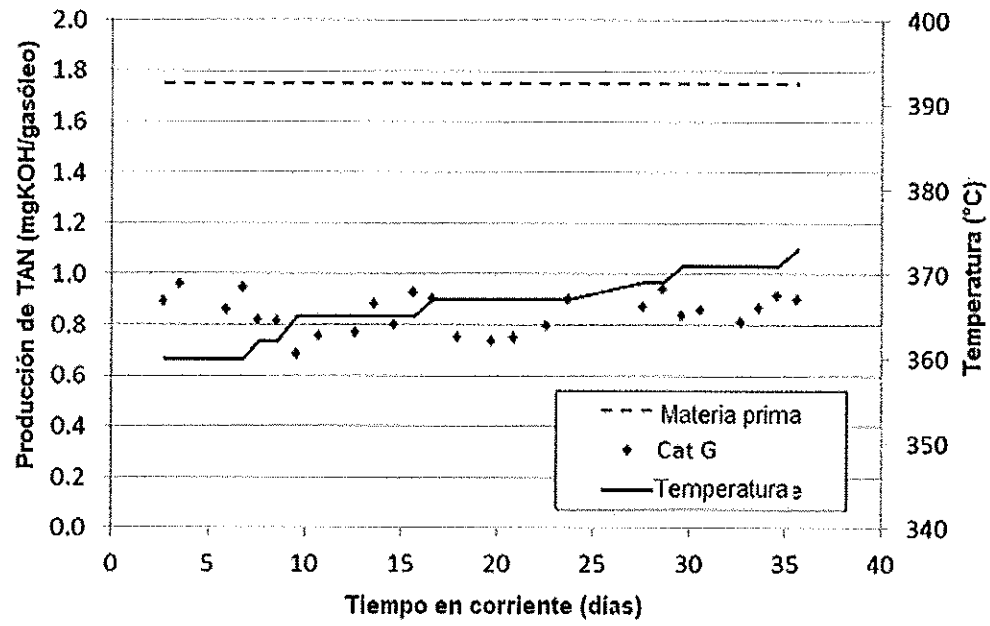


FIGURA 47

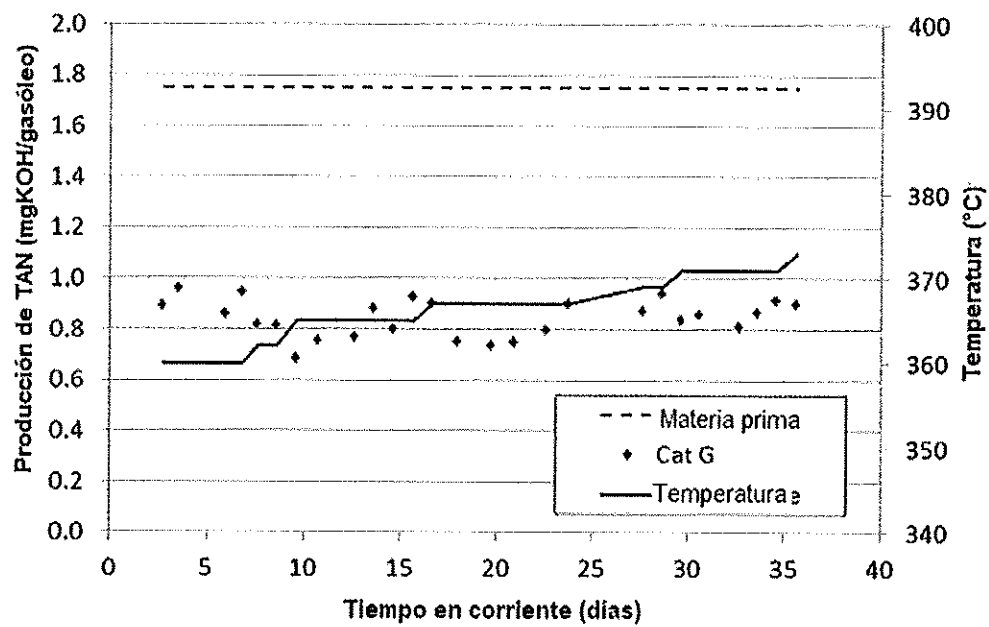


FIGURA 50

