

بررسی فعالیت و پایداری حرارتی نانو ذره‌های طلا روی پایه‌ی زئولیتی نوع NH₄-Y در واکنش اکسایش کربن مونواکسید

+*

SPAG
Na-NH -Y NH -Y
CO / ml/min
Au/Na-NH -Y
FT-IR EDAX XRF
NH -Y

KEY WORDS: NH₄-Y zeolite, Carbon monoxide, Gold nano particles.

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[]

.[]
 Y
 Au/Y
 Y
 pH / × M
 h
 .[] CO .[]
 (β Y) .[]
 .[]
 NH -Y
 Na-NH -Y .[]
 FT-IR EDAX XRF
 nm
 () NH -Y .[]
 Na⁺ .[]
 pH . NaNO₃ TiO₂
 NaOH
 () pH [] Al-SBA- [] MCM- Fe₂O₃
 [] A [] Y Al₂O₃ Mg(OH)₂
 .[] H-BETA
 Na⁺
 Na-NH -Y
 / Auwt% ((HAuCl₄ · H₂O)
 pH ml NO Au/
 NaOH .[]
 Y

...

..Au/Na-NH -Y NH -Y (%w/w)

	SiO	Al O	Na O	SiO /Al O	Au
NH -Y	/	/	/	/	-
Au/Na-NH -Y	/	/	/	/	/

/ / Au/Na-NH NH -Y /
 . / wt%

)
 (ml

()
 (/)

XRF NH -Y
 (Oxford ED)

Energy Dispersive Analysis by X-rays
 (EDAX; SEM, Philips, XL)

Fourier Transform Infrared Spectroscopy
 (FTIR; ATI Mattson)

Inductively Coupled Plasma-
 ICP-AES; Varian,) Atomic Emission spectroscopy
 (Liberty 150 AX Turbo

/ ml/min ml/min

() CO BABUC/A

FT-IR

FT-IR

IR

[]

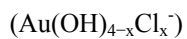
Y
 cm

Au/Na-NH -Y

NH -Y

Y

Si/Al



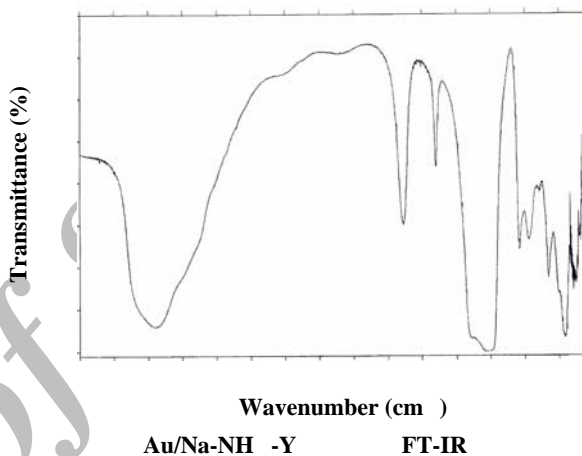
EDAX

nm

nm

Y IR

	(cm ⁻¹)
T-O	
O-T-O	
O-T-O	
O-T-O	
O-T-O	



Archive of

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(

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NH^+

[1] Toshima, N., "Metal Nanoparticles Used as Catalysts. In: Encyclopedia of Nanoscience and Nanotechnology", Schwarz. J. A. Contescu. C. I. and Putyera. K, New York: Marcel Dekker, USA., 3, p. 1297 (2004).

- [2] Ying, J.Y., Design and Synthesis of Nanostructured Catalyst, *Chemical Engineering Science*, **61**, p. 1540 (2006).
- [3] Kašpar, J., Fornasiero, P., Hickey, N., Automotive Catalytic Converters: Current Status and Some Perspective, *Catalysis Today*, **77**, p. 419 (2003).
- [4] Haruta, M., Tsubota, S., Kobayashi, T., Kageyama, H., Genet, M.J., and Delmon, B., Low-Temperature Oxidation of CO Over Gold Supported on TiO₂, α -Fe₂O₃, and Co₃O₄, *Journal of Catalysis*, **144**, p. 175 (1993).
- [5] Mellor, J.R., Palazov, A.N., Grigorova, B.S., Greyling, J.F., Reddy, K., Letsoalo, M.P., Marsh, J.H., The Application of Supported Gold Catalysts to Automotive Pollution Abatement, *Catalysis Today*, **72**, p. 145 (2002).
- [6] Chiang, C.W., Wang, A., Mou, C.Y., CO Oxidation Catalyzed by Gold Nanoparticles Confined in Mesoporous Aluminosilicate Al-SBA-15: Pretreatment Methods, *Catalysis Today*, **117**, p. 220 (2006).
- [7] Pillai, U.R., Deevi, S., Effect of Support on the Activity of Gold Catalysts in CO Oxidation, *New Technology Research*, **23**, p. 8 (2004).
- [8] Bulushev, D.A., Yuranov, I., Suvorova, E.I., Buffat, P.A., Kiwi-Minsker, L., Highly Dispersed Gold on Activated Carbon Fibers for Low-Temperature CO Oxidation, *Journal of Catalysis*, **224**, p. 8 (2004).
- [9] Lin, J.N., Wan, B.Z., Effects of Preparation Conditions on Gold/Y-Type Zeolite for CO Oxidation, *Applied Catalysis B: Environmental*, **41**, p. 83 (2003).
- [10] Kuge, K., Calzaferri, G., Gold-Loaded Zeolite A, *Microporous and Mesoporous Materials*, **66**, p. 15 (2003).
- [11] Derouane, E.G., Schmidt, I., Lachasa, H., Christensen, C.J.H., Improved Performance of Nano-Size H-BEA Zeolite Catalysts for the Friedel-Crafts Acetylation of Anisole by Acetic Anhydride, *Catalysis Letters*, **95**, p. 13 (2004).
- [12] Lin, J.N., Chen, J.H., Hsiao, C.Y., Kang, Y.M., Wan, B.Z., Gold Supported on Surface Acidity Modified Y-Type and Iron/Y-Type Zeolite for CO Oxidation, *Applied Catalysis B: Environmental*, **36**, p. 19 (2002).
- [13] Chen, J.H., Lin, J.N., Kang, Y.M., Yu, W.Y., Kuo, C.N., Wan, B.Z., Preparation of Nano-Gold in Zeolite for CO Oxidation: Effects of Structures and Number of Ion Exchange Sites of Zeolites, *Applied Catalysis A: General*, **291**, p. 162 (2005).
- [14] Lohse, U., Pitsch, I., Shreier, E., Parltitz, B., Schnabel, K.H., Cubic and Hexagonal Faujasites with Varying Si/Al Ratios I. Synthesis and Characterization, *Applied Catalysis A: General*, **129**, p. 189 (1995).
- [15] Walton, K.S., Abney, M.B., Douglas, LeVan, M., CO₂ Adsorption in Y and X Zeolites Modified by Alkali Metal Cation Exchange, *Microporous and Mesoporous Materials*, **91**, p. 78 (2006).