

4 :

2-10 nm

가

- Al-MCM-41 dimethylacetal [1]



Scheme 1

가

가

가

가

가

acetal

Dimethylacetal

가

(nucleophilic addition)

aldehyde trimethyl orthoformate

, enol ether가

(scheme 1).

Bronsted

Al(OH)Si

OH

silanol

HY, Hbeta,

silica-alumina

Al-

MCM-41,

가

n-heptanal,

2-phenylpropanal,

diphenylacetaldehyde

가

B

, MCM-41

가 가

MCM-41

가

가

가

MCM-41

가

가

● Pt/MCM-41

[2]

0.05 %

가

(particulate emission)

(cetane number)

가

가

가

MCM-41

[Naphthalene ---> Tetralin --> cis/trans Decalin]

USY

200 ppm

dibenzothiophene (DBT)

가

AI-MCM-41

USY

가

AI-MCM-41

(0.1 -0.15 nm)

Bronsted

Pt/AI-MCM-41

573 K

400 ppm

LCO(light cycle oil)

● MCM-41

diethylzinc aldehyde

가 (enantioselective addition) [3]

(immobilization)

가 가 가

Diethylzinc aldehyde 가

가

Scheme 2

MCM-41

OH

3-chloropropyltrimethoxysilane(CPTMS)

(1R,2S)-(-)-ephedrine

scheme 3

(1) MCM-41

CPTMS

OH

silylation (1 a)가

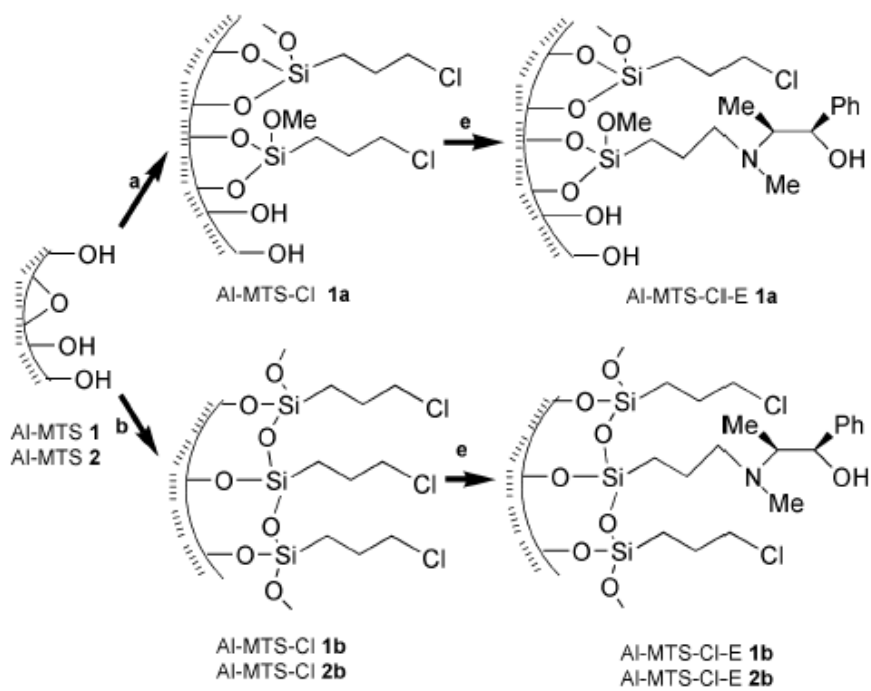
filming (1b, 2b)

OH

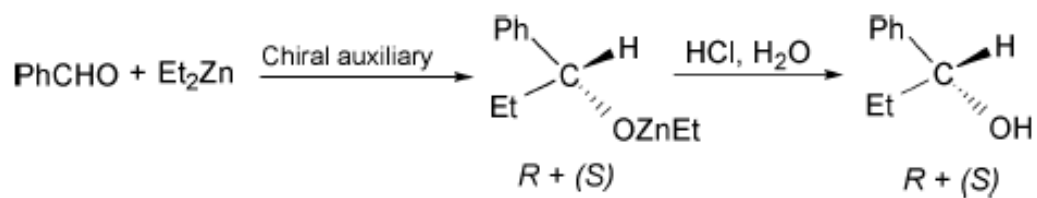
, (2)

8.3 nm

MCM -41



Scheme 2



Scheme 3

● Co/SBA -15

Pauson -Khand [4]

Pauson -Khand

3

alkyne alkene 가

가 (cycloaddition)

cyclopentenone

. Scheme 4

triple/double bond가

(intramolecular cycloaddition)

Co₂(Co)₈

SBA -15

MCM -41

Co₂(Co)₈

reflux

가

4

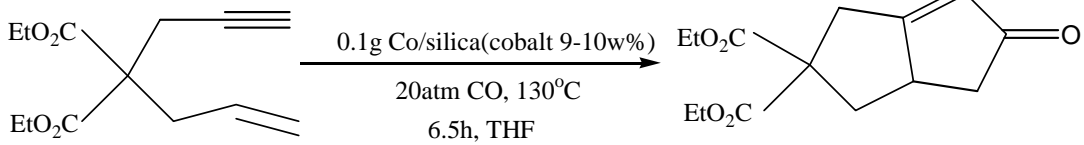
가

Co₂(Co)₈

. SBA -15

MCM -41

가



Scheme 4

● Ti -MCM -41

H₂O₂

[5]

epoxidation

가

TS -

1(titanium silicalite -1)

가

TS -1

(pH < 1)

TS -1

, triblock co -polymer(Pluronic

123)

MTS -9

. MTS -9 TS -1

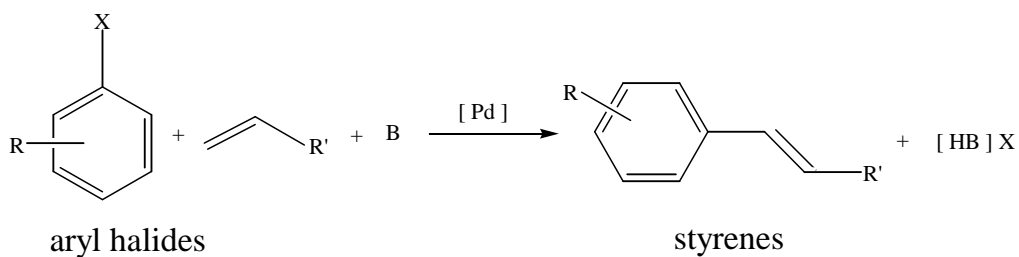
2,3,6 trimethyl phenol

Ti

TS -1

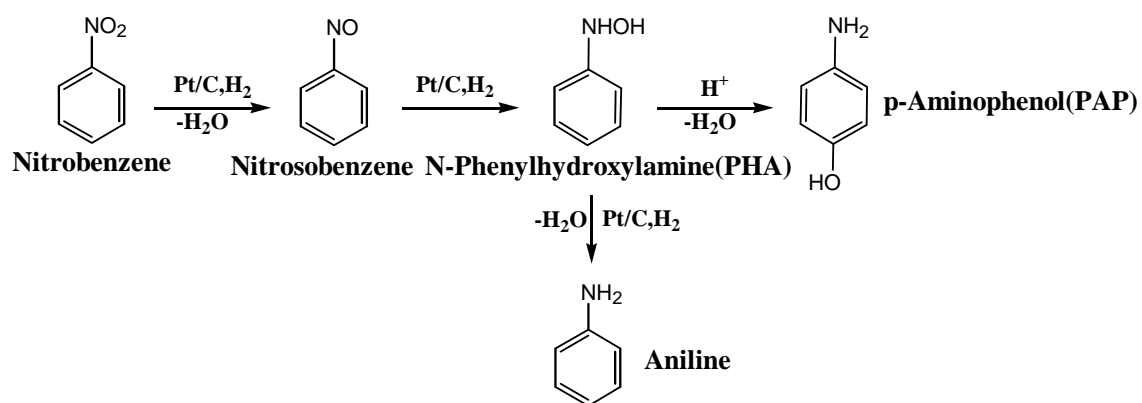
120h

● Pd -MCM -41 Heck [6]
 Heck, scheme 5 aryl
 halides vinylation C-C HX
 (Pd) NEt₃ 가 Pd
 MCM -41 grafting
 Pd-MCM 41 Pd/SiO₂, Pd/Al₂O₃ Pd/C
 Pd-MCM 41
 grafting 10-30 wt %
 가 2



Scheme 5

● Pt/CMK -3 (multi -phase reactor) acetaminophen
 [7]
 p -Aminophenol(PAP) Tylenol acetaminophen
 nitrobenzene(NB) N -
 phenylhydroxylamine (PHA) PHA가
 PAP NB 가
 aniline / scheme 6 NB
 CMK -1 CMK -3
 2% Pt/CMK -1 5% Pt/C PAP 가
 Pt/CMK -3 가 Pt/CMK -1
 CMK -1 CMK -3 MCM -48 SBA -15
 sucrose propylene



Scheme 6

CMK

가

/

, CMK

100 %

80%

References :

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