TECHNICAL DATA SHEET

ZSM-5 Adsorbent Series

Granular ZSM-5 zeolite adsorbents · G-360 binder-free hydrophobic · G-22 Ba-ZSM-5 · G-300 discontinued



ACS Material ZSM-5 Adsorbent — Representative Packaging

ACS Material ZSM-5 Adsorbent, G-360, granular, 1 kg (MZ5AG231). Image shown for reference; label and packaging may vary.

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Revision Date **10/29/2026**

SECTION I

Product Overview

ACS Material ZSM-5 Adsorbent Series comprises granular ZSM-5 (Zeolite Socony Mobil–5) adsorbents: Binder-free Hydrophobic Zeolite Adsorbent (Product Code: G-360), Hydrophobic Zeolite Adsorbent with boehmite binder (Product Code: G-300), and Ba-ZSM-5 (Product Code: G-22). G-300 has been discontinued; its data are retained in this data sheet for reference.

In practical applications, binders or cohesive agents are commonly used in the shaping process, and the binder can bring negative effects: the zeolite powder is difficult to recover and easily inactivates and aggregates, and the binder reduces the effective surface area and introduces diffusional limitation. Binder-free Hydrophobic ZSM-5 Adsorbent (G-360) can be used to solve these problems.

Due to the unique physical properties of hydrophobic zeolite adsorbents, solvent control systems using hydrophobic zeolite may exhibit separation capacity equal to or better than systems using activated carbon without requiring much of the support equipment. Though activated carbon remains the adsorbent of choice for many applications, hydrophobic zeolite represents an efficient alternative for many niche applications.

SECTION II

Core Advantages

- **Binder-free (G-360)** — no binder dilution of the zeolite.
- **Hydrophobic (G-360 and G-300)** — water adsorption ≤2 wt%.
- **Ba-ZSM-5 (G-22)** — Ba <2.21%; BET ~330 m^2/g.
- **High silica** — G-360 SiO_2/Al_2O_3 molar ratio 360.
- **High surface area** — G-360 BET ≥340 m^2/g.
- **Granular** — D 1–3 mm (G-360).

SECTION III

Specifications

Technical data

Specifications	
Product name	ZSM-5 Adsorbent Series (Zeolite Socony Mobil–5)
Brand	ACS Material
CAS No.	1318-02-1
Grades	G-360 binder-free hydrophobic; G-300 hydrophobic with boehmite binder (discontinued); G-22 Ba-ZSM-5
Preparation method (G-360 and G-300)	Hydrothermal Method

Hydrophobic ZSM-5 adsorbents

Characterizations	G-360 (binder-free)	G-300 — Discontinued
Shape	Granular, D 1–3 mm	Granular, D 1–3 mm
SiO_2/Al_2O_3 molar ratio	360	300
BET surface area (m^2/g)	≥340	≥220
Bulk density (g/mL)	~0.68	~0.68
Na_2O (%)	≤0.2	≤0.2
Comparative crystallinity (%)	≥90	≥90
Adsorption of hexane (wt%)	≥9.6	≥7.2
Adsorption of water (wt%)	≤2	≤2
Compressive strength (N/mm^2)	≥40	≥25
Pore size (Å)	~5	~5

G-300 (Discontinued). Specifications are retained for reference.

Ba-ZSM-5 adsorbent

Characterizations	G-22 (Ba-ZSM-5)
Color	White
SiO_2/Al_2O_3 molar ratio	~22
Ba (%)	<2.21
BET surface area (m^2/g)	~330
Total pore volume (cm^3/g)	0.37
Mechanical strength (N/bead)	≥25
Particle size	Granular, D 1.5–1.8 mm

Ordering information

Product code	Package	Product No.
G-360	1 kg	MZ5AG231
G-360	5 kg	MZ5AG235
G-22	20 g	MZ5B0112
G-22	1 kg	MZ5B0131

SECTION IV

Applications

1) Oil refining.
2) Sorbents.
3) Catalytic degradation of LDPE.
4) Separation and extraction of aromatic isomers.
5) Removal of formaldehyde and harmful volatile organics.
6) Liquid–gas separation.
7) Light alkane dehydrogenation.
8) Aromatization of propane.
9) Para-selective dealkylation and vapor-phase Beckmann rearrangement.
10) Separation of acetic acid from water.

Revision Date: 10/29/2026

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