

Methyl Orange Indicator, Pure

Catalog No: ASD-633 | CAS: 547-58-0 | Laboratory Reagent / Indicator Grade

High-purity azo pH indicator — 97.3% dye content — transition pH 3.1 → 4.4

1. Product Overview

Methyl Orange Indicator, Pure (ASD-633) is a premium-quality synthetic azo dye serving as a precise pH indicator in analytical chemistry. This batch achieves an exceptionally high dye content of 97.3% by spectrophotometry, well above the standard specification of >95.0%. Methyl Orange undergoes a sharp, well-defined colour transition from pink at pH 3.1 to orange-yellow at pH 4.4, making it the standard indicator of choice for acid-base titrations involving strong mineral acids and weak bases. Its excellent solubility, low moisture content (1.39%), and consistent spectrophotometric performance make it a reliable choice for laboratory professionals.

2. Chemical & Physical Properties

| Property | Value |
|--|--|
| Chemical Name | Methyl Orange / Sodium 4-[(4-dimethylaminophenyl)azo]benzenesulphonate |
| Catalog Number | ASD-633 |
| CAS Number | 547-58-0 |
| Color Index | C.I. 13025 (Acid Orange 52) |
| Molecular Formula | C ₁₄ H ₁₄ N ₃ NaO ₃ S |
| Molecular Weight | 327.33 g/mol |
| Grade | Laboratory Reagent / Indicator Grade |
| Form | Powder |
| Colour (solid) | Dark orange |
| Solubility | Completely soluble in water — clear orange solution at 0.1% |
| pH Transition Range | pH 3.1 (Pink) → pH 4.4 (Orange-Yellow) |
| Dye Content (spectrophotometry) | 97.3% (specification: > 95.0%) |
| Loss on Drying (110°C / 1 hr) | 1.39% (specification: < 3.0%) |
| Absorptivity at pH 3.1 (λ _{max} 504.2 nm) | 1115 A(1%/1cm) [spec: 1050–1150] |
| Absorptivity at pH 4.4 (λ _{max} 468.6 nm) | 813 A(1%/1cm) [spec: 750–850] |

3. Key Features & Benefits

- High purity — verified spectrophotometric dye content of 97.3%, ensuring potent and reliable indicator solutions

- Sharp, well-defined transition — confirmed pH 3.1 (pink) to 4.4 (orange-yellow) endpoint detection
- Excellent solubility — dissolves completely to form a clear orange solution at 0.1% concentration
- Low moisture content — 1.39% loss on drying ensures a stable, free-flowing powder with long shelf life
- Consistent spectrophotometric performance — absorptivity values within specification at both transition points

4. Applications

| Application Area | Details |
|----------------------|--|
| Acid-Base Titrations | Preferred indicator for titrating strong mineral acids (HCl, H ₂ SO ₄) against weak bases (Na ₂ CO ₃ , NaHCO ₃) |
| Water Analysis | Determination of alkalinity in water samples |
| Education & Research | Standard laboratory reagent for university and industrial laboratories requiring reliable pH indication in the acidic range (pH 3–5) |

5. Preparation of Indicator Solution

| | |
|---|---|
| 1 | Dissolve 0.1 g of Methyl Orange in 100 mL of warm distilled water. |
| 2 | Cool to room temperature and filter if necessary. |
| 3 | Store in a tightly closed amber glass bottle away from direct light. |
| 4 | Typical use: 2–3 drops per titration. Solution is pink in acid (< pH 3.1) and orange-yellow in base (> pH 4.4). |

6. Storage & Stability

| Parameter | Recommendation |
|--------------------|--|
| Storage Conditions | Cool, dry place — tightly closed container |
| Light Sensitivity | Protect from direct light and UV exposure |
| Shelf Life | Stable under recommended storage conditions — refer to label |

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