# 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** | $C_{14}H_{14}N_3NaO_3S$ |
| **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 (λmax 504.2 nm)** | 1115 A(1%/1cm) [spec: 1050–1150] |
| **Absorptivity at pH 4.4 (λmax 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, $H_2SO_4$) against weak bases ($Na_2CO_3$, $NaHCO_3$) |
| **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 |