



## CERTIFICATE OF ANALYSIS

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### 1. Identification

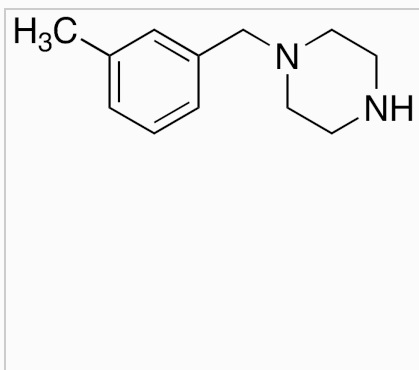
**Catalogue Number:** M292850

**CAS Number:** 5321-48-2

**Product:** 1-(3-Methylbenzyl)piperazine

**Synonym:** 1-[(3-Methylphenyl)methyl]piperazine; 1-(m-Methylbenzyl)piperazine; N-(m-Methylbenzyl)piperazine; NSC 30681;

**Structure:**



**Molecular Formula:**

C<sub>12</sub>H<sub>18</sub>N<sub>2</sub>

**Molecular weight:**

190.28

**Source of Product:**

N/A

**Solubility:**

Chloroform (Slightly),  
Methanol (Slightly)

**Lot Number:** 15-ANR-83-1

**Purity:** 98%

**Shipping Condition:** This Product Is Stable To Be Shipped At Room Temperature

**Storage Condition:** 4°C

### 2. Warning

**Warning 1:** Not Determined

**Warning 2:**

**Warning 3:**

### 3. Analytical Information

Tests:	Specifications:	Results:
Appearance	Colourless to Pale Yellow Oil	Clear Colourless Oil
NMR	Conforms to Structure	Conforms
MS	Conforms to Structure	Conforms
HPLC Purity	>95%	96.64% (215 nm)
Elemental Analysis	Conforms	%C: 75.76, %H: 9.03, %N: 15.11

#### Additional Information:

TLC Conditions: SiO<sub>2</sub>; Dichloromethane : Methanol : Ammonium Hydroxide = 8 : 2 : 0.2; Visualized with UV and KMnO<sub>4</sub>; Single Spot, R<sub>f</sub> = 0.30. Elemental Analysis: (Theoretical) %C: 75.74, %H: 9.53, %N: 14.72

Purity is based on the analytical results of the tests performed. NMR and Elemental Analysis (if available) may have an accuracy of ± 2%. Isotopic purity is based on mass distribution observed. The contents of the specifications are subject to change without advance notice, and the specification values displayed here are the most up to date values.

### 4. Signatures

Reviewed By	Reviewed By	C of A Approved By	Test Date	Retest Date
Hanxiang Li	Toni Rantanen	My Nguyen	2/24/2020	2/22/2030

Hanxiang Li

Toni Rantanen

My Nguyen