



# 馬來酐

## Maleic Anhydride



南亞塑膠工業股份有限公司  
NAN YA PLASTICS CORPORATION

## ■ 簡介

馬來酐(Maleic anhydride)又名順丁烯二酸酐，英文縮寫MA。

公司係以正丁烷氧化法生產馬來酐：以正丁烷為原料，在鈦-磷系觸媒催化下，以流體化床方式產生氣相氧化反應，生成馬來酐。此生產技術較傳統苯氧化法具有較低原料消耗、產品產量較高及對環境污染較小之優點。隨著全球環保意識訴求越來越高，正丁烷氧化法在滿足環保要求以及發展前景方面比苯氧化法更具有優越性。

## ■ Introduction

Maleic anhydride, also known as Cis-butenedioic anhydride, is simplified as MA.

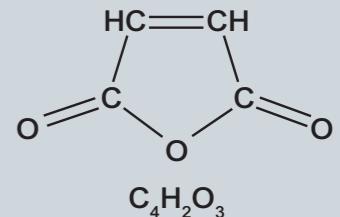
We adopt the n-butane oxidation process technology to produce MA. Under vanadium-phosphorus catalyst in a fluidized bed reactor, the raw material, n-butane, is reacted with oxygen in the gas-phase and then MA comes out. The advantages of this technology are lower material consumption, higher yield and lower environmental pollution than the traditional benzene oxidation process.

With intense global environmental protection pressures and to meet their requirements and the prospects, n-butane oxidation process is superior to benzene oxidation process.

## ■ 物理性質 Physical Properties

• 化學式 Chemical Formula .....	<chem>C4H2O3</chem>
分子量 Molecular Weight .....	98.06
沸點 Boiling Point, °C .....	202
凝固點 Freezing Point, °C .....	52.8
蒸氣密度 Vapor Density .....	3.381
液體密度 Liquid Density .....	1.43
蒸氣壓 Vapor Pressure, 20°C.atm .....	0.039
蒸氣熱容量 Vapor Heat Capacity, 20°C、Kcal/kg .....	0.245
液體熱容量 Liquid Heat Capacity, 20°C、Kcal/kg°C .....	0.338
液體黏度 Liquid viscosity, 25°C、CP=mPa.g .....	1.19
溶解熱 Heat of fusion, Kcal/mol .....	-2.8
蒸發熱 Heat of Vaporization, Kcal/mol .....	-10.5
燃燒熱 Heat of Combustion, Kcal/mol .....	334
臨界溫度 Critical Temperature, °C .....	437
臨界壓力 Critical Pressure, atm .....	62.7
自動點火溫度 Auto-ignition Temperature, °C .....	477
閃火點 Flash Point, °C .....	100~110
水中溶解度 Solubility in water .....	44%(25°C)
爆炸界限 Flammable limits, % .....	1.4~7.1%
化學文摘社登記號碼 CAS NO. .....	108-31-6
急毒性LD50（大鼠吞食） Acute Toxicity LD50(rat oral) .....	400mg/kg

## • 結構式 Structural Formula



## ■ 用途

馬來酐主要用於生產不飽和聚酯樹脂、醇酸樹脂，也用於農藥、醫藥、塗料、油墨、潤滑油之添加劑、造紙化學品、紡織品之整理劑以及表面活性劑等領域。此外，以馬來酐產原料、還可以生產1, 4-丁二醇、γ-丁內酯(GBL)、四氫呋喃(THF)、富馬酸和四氫酸酐等一系列用途廣泛的精細化工產品。

## ■ 包裝規格

為配合客戶生產需要，本公司產品包裝共有三種方式：

(1)25公斤包裝: (大顆粒)

紙袋包裝，為阻隔水份及空氣滲入，紙袋共有4層；內層為高密度聚乙烯外包三層牛皮紙。

(2)600公斤包裝: (大顆粒或小顆粒)

使用太空袋包裝

(3)ISO-Tank(外銷)及槽車裝運(內銷):

槽體設有加熱及保溫裝置，方便客戶使用。

## ■ Usage

Maleic anhydride is mainly used for the production of unsaturated polyester resin, alkyl resins, also used in pesticides, pharmaceuticals, paints, ink, lubricant additives, paper chemicals, textiles finishing agent, and surface active agent field. In addition, maleic anhydride as raw material, also can produce 1,4-butanediol, γ-butyrolactone ( GBL ), tetrahydrofuran ( THF ), fumaric acid and tetrahydro anhydride and a series of widely used fine chemical products.

## ■ Packages

There are two packaging types to meet the requirement of customers:

(1)25KG packing: (Briquette)

The paper bag separates water and air infiltration, it has total 4 layers . Inner is high-density polyethylene + three layers of brown paper.

(2)600KG Package: (Briquette or Pastille)

Use big bag as packing material.

(3)ISO-TANK (for export) and LORRY (for domestic):

Heating and insulation devices enabling customers to use easily.

## ■ 規格 Specifications

MA 品質規範 Quality Specification

項目 Properties	單位 Unit	品質標準 Quality Standards	檢驗方法 Test Method
純度 Purity	wt%	≥99.5	JIS K 1359 Eq.
色相 Color	APHA	≤20	JIS K 1359 Eq.
鐵含量 Fe Content	PPM	≤5	ICP
凝固點 Freezing Point	°C	≥52.5	JIS K 1359 Eq.
外觀 Appearance (液體) (Liquid)	--	澄清 Clear	JIS K 1359 Eq.

## ■ 認證 Authentication

1.通過ISO-9001認證、ISO-14001認證

2.有The Reach Certificate of MA認證 (Registration Number : 01-2119472428-31-0055)

## ■ 儲存

馬來酐易與水反應產生馬來酸，故儲存環境保持乾燥，產品避免與水接觸。馬來酐凝固點在52.5°C以上，固態產品儲存溫度約在40°C以下；若以液態儲存於儲槽時，儲存溫度約在65°C左右。使用原則以先進先出為原則，以避免成品因存放過久而變質。

## ■ Storage

Maleic anhydride is easy to react with water and generate maleic acid, so the storage environment should avoid from contact of water. The freezing point of maleic anhydride is 52.5°C above. If customers prefer to store it in solid-state, the storage temperature is recommended below 40°C. If customers prefer to store it in liquid state in the storage tank, the storage temperature is recommended about 65°C. First in- first out is the basic principle. The old product takes precedence in order to avoid the product deterioration due to prolonged storage.



(南亞化二部網頁)

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