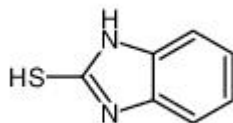


FC-038 (CAS 583-39-1) 2-Mercaptobenzimidazole**BASIC INFORMATION**

Cas: 583-39-1
Name: 2-Mercaptobenzimidazole, Nocrac
MB; AOMB; 2,3-dihydro-1H-benzimidazole-2-thione; 2H-Benzimidazole-2-thione, 1,3-dihydro-; asmmb; Antigen
MB; 2,3-dihydro-2-benzimidazolethione; 1,3-dihydro-2H-benzimidazole-2-thione; Vulkanox; USAF xf-21;
Molecular formula: C₇H₆N₂S
Molecular weight: 150.20100
Accurate quality: 150.02500
PSA: 67.48000
LOGP: 1.85160

PHYSICAL INDEX

Appearance and traits: yellow or white crystals
Density: 1.42
Boiling point: 270.6° C at 760mmHg
Melting point: 300-304 ° C (lit.)
Flash point: >250° C
Refractive index: 1.714
Stability: Stable. Incompatible with strong oxidizing agents.
Storage conditions: ventilated, low temperature and dry

SECURITY INFORMATION

RTECS number: DE1050000
Safety instructions: S26-S36-S24/25
Hazard category code: R22
WGK Germany: 2
Customs code: 2933990090
Dangerous goods transport code: UN 2811 6.1/PG 3

Hazard category: 6.1

Packing level: III

Dangerous goods mark: Xn

production method

1. Preparation of o-nitroaniline. The molten o-nitrochlorobenzene was sucked into the autoclave, and 28% ammonia was added, and the temperature was increased to 170~175°C in a sealed airtight. The reaction was stirred for 7h, and the pressure was 3.5~4MPa. After the reaction is over, the ammonia is released to relieve the pressure, and the ammonia gas is cooled and absorbed to make ammonia water for recycling. When the temperature in the kettle drops to 100° C, the remaining pressure is used to press the reactants in the kettle into 1000L of water that has been prepared in the precipitation tank. Cool to below 30° C, filter, and wash the filter cake with a small amount of cold water to obtain o-nitroaniline. The yield is 95%~96%. 2. Preparation of antioxidant MB. Add o-nitroaniline and 21% sodium sulfide solution in the reduction tank, heat up to 90°C, then heat up to 105~110°C in a sealed airtight, pressure rise to 0.1~0.2MPa, stir and reduce for 5h After cooling to below 30°C, carbon disulfide is added for reaction, and the temperature is kept at about 40°C. After a few hours of reaction, the temperature is raised to recover carbon disulfide. Then put in an appropriate amount of sodium bicarbonate solution, add activated carbon to decolorize and filter, the filtrate is acidified with dilute hydrochloric acid or dilute sulfuric acid, and 2-mercaptobenzimidazole is precipitated as a solid. After centrifugal separation, washing, drying and crushing, the finished product is obtained. 3. Add 64kg of o-phenylenediamine, 18kg of potassium hydroxide, and 52kg of carbon disulfide to the reaction kettle in sequence. Start stirring, then add 480kg of alcohol and 190kg of distilled water to slowly heat to dissolve, then continue to heat to reflux for 3h. Cool down, add 24kg

PRODUCTION METHODS AND APPLICATION

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activated carbon and reflux for 20min after stopping boiling to decolorize. Then filter to remove the activated carbon. The filtrate is put into a crystallization tank, heated to 60~70℃, and 300 parts of water are heated. Add acetic acid aqueous solution (30%~32%) under stirring to complete the crystallization. After centrifugal filtration, the crystals were collected and dried at 40 ℃ to obtain the finished product. The reaction formula is as follows:

use

This product is used as an antioxidant for natural rubber, diene synthetic rubber and latex. It can also be used for polyethylene. It is a so-called secondary anti-aging agent. It can be used in combination with other anti-aging agents (such as DNP, AP and other non-polluting anti-aging agents) to obtain obvious synergistic effects. The product is easily dispersed in rubber and does not change color under sunlight. Slightly polluting. When used alone, the dosage is generally 1-1.5 parts. When the dosage exceeds 2 parts, blooming will occur. The dosage in latex foam rubber is 0.5-1 part, and the dosage in transparent rubber products is 0.5 part. Because this product has a bitter taste, it is not suitable for use in rubber products that come in contact with food. 2-Mercaptobenzimidazole is a new anti-leprosy drug in medicine. Its toxicity is lower than that of sulfone drugs, and its curative effect is low. It can produce drug resistance without accumulation. It can be used for patients who are not suitable for sulfone drugs. The 2-mercaptoimidazole alkali metal salt aqueous solution reacts with the water-soluble zinc salt solution to obtain 2-mercaptobenzimidazole zinc salt, which is the antioxidant MBZ (C₁₄H₁₀N₄S₂Zn). The product is non-toxic.
