



国家高新技术企业  
National High-tech Enterprise

国家级专精特新“小巨人”企业  
National Special New “Little Giant” enterprise

中国石油和化工行业技术创新示范企业  
China Petroleum&Chemical Industry Technology Innovation Demonstration Enterprise

河南省制造业单项冠军  
Henan Province Manufacturing Industry Individual Champion

河南省“绿色工厂”  
Henan Province Green Factory

9项橡胶助剂国家和行业标准起草单位  
9 Rubber Additives National and Industry Standard Drafting Unit



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河南省开仑化工有限责任公司  
HENAN KAILUN CHEMICAL CO., LTD.





董事长 苗进之

以卓越品質貢獻社會  
打造百年開侖！

苗進之

## 企业简介 COMPANY PROFILE

河南省开伦化工有限责任公司始建于1953年，是全国历史最为悠久的橡胶助剂生产企业之一，以其深厚的经营史和文化底蕴，始终立于我国橡胶助剂工业改革的潮头。公司是原国家化工部橡胶助剂定点生产厂，中国橡胶工业协会成员单位，橡胶助剂国家标准起草单位之一，年产“火炬”牌防老剂、硫化促进剂、橡胶用不溶性硫磺、防焦剂CTP等10万吨，主要产品市场占有率居全球前列。

公司研发技术力量雄厚，拥有省级企业技术中心、省级不溶性硫磺工程技术中心和河南省特种功能橡胶助剂工程研究中心，建成了河南省博士后创新实践基地，与国内外多家科研机构 and 高校建立了产学研合作关系，研发成果中有26项列入国家火炬计划和省、市科技攻关计划，拥有23项专利（10项为发明专利），在国内外发明展览会上获得10项大奖，先后通过IATF 16949:2016、ISO9001:2015、ISO14001:2015、ISO50001:2018和ISO45001:2018等管理体系认证。

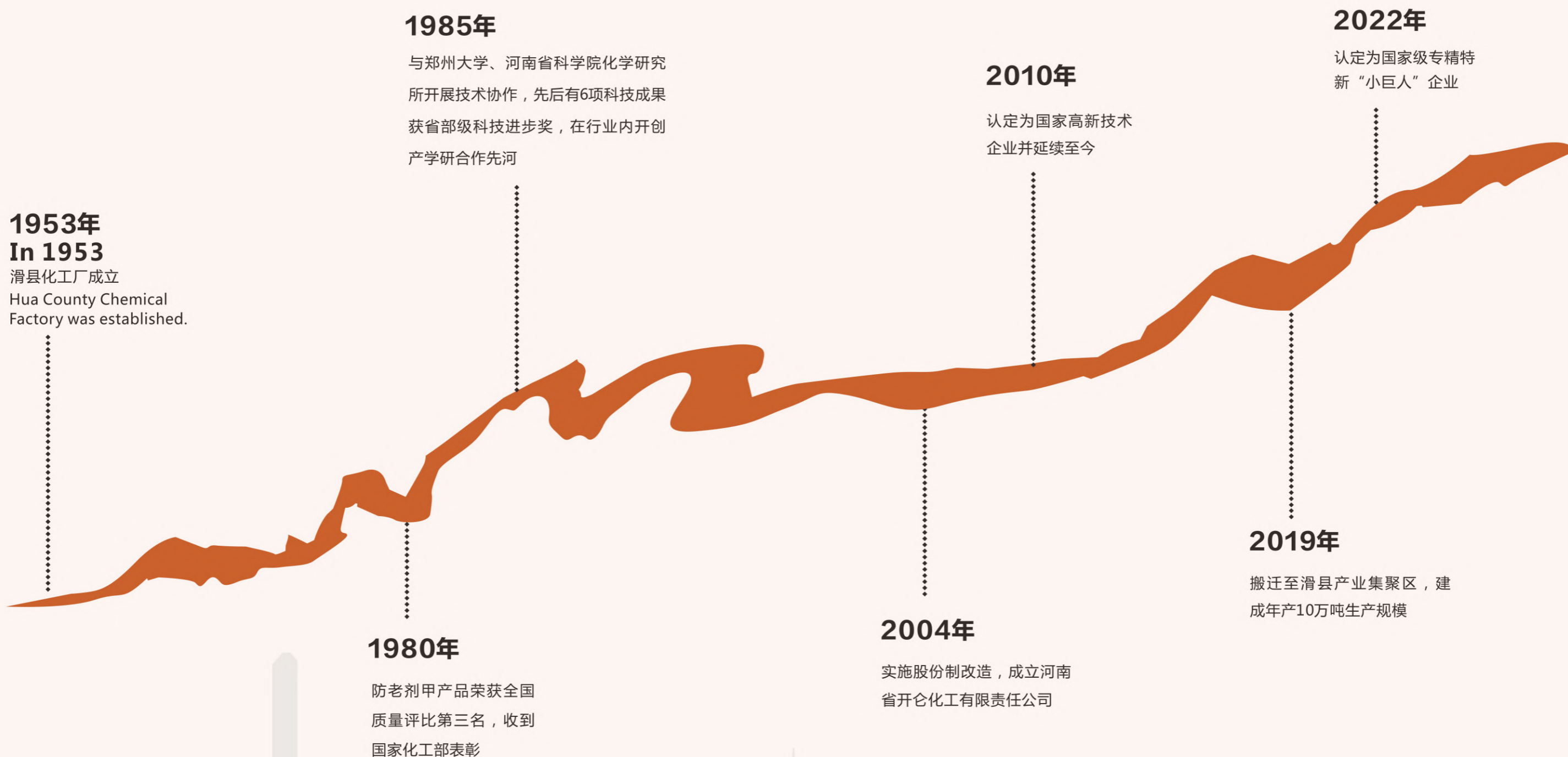
多年来公司始终以“质量稳定、价格合理、优质服务、诚信经营”的理念，赢得了国内外广大客户的信赖和认可，出口额占全年营业额的20%。公司与普利司通、韩泰、佳通、杭州中策等国内外特大型轮胎生产企业建立了长期稳定的合作关系，产品出口60多个国家和地区，品牌日趋国际化。

Henan Kailun Chemical Co., Ltd. was established in 1953 and is one of the time-honored rubber additives production enterprises in China. With its profound history and cultural heritage, it is at the forefront of the reform of China's rubber additives industry. The company is a designated production plant for rubber additives by the Ministry of Chemical Industry, a member unit of the China Rubber Industry Association, and one of the drafting units for national standards of rubber additives. It produces 100,000 tons of "Torch" brand antioxidants, vulcanization accelerators, insoluble sulfur, and anti-scorching agent CTP, the market share of the products ranks in the forefront of the world.

The company has strong research and development capabilities, with a provincial enterprise technical center and engineering center. It has established a postdoctoral innovation practice base in Henan Province and established cooperation relationships with domestic and foreign scientific research institutions and universities, and 15 research and development achievements have been included in the National Torch Program and provincial and municipal scientific and technological research programs. The company holds 23 patents (10 of which are invention patents) and has won 10 awards at domestic and international invention exhibitions. It has successively passed management system certifications such as IATF 16949:2016, ISO9001:2015, ISO14001:2015, ISO50001:2018, and ISO45001:2018.

Over the years, the company has always been based on the concept of "stable quality, reasonable price, quality service, good faith management", which has earned the trust and recognition of customers at home and abroad. The company has established long-term stable relationships with major domestic and foreign tire manufacturers such as Bridgestone Tire, Kumho Tire, Zhongce Tire, Giti Tire. Its products are exported to more than 60 countries and regions.





## 荣誉展示 Honor display

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- 河南省工程技术研究中心  
Henan Engineering Technology Research Center
- 河南省工程研究中心  
Henan Engineering Research Center
- 河南省知识产权优势企业  
Henan Province Intellectual Property Advantage Enterprise
- 河南省博士后创新实践基地  
Henan Post-doctoral Innovation Practice Base
- 河南省质量标杆企业  
Henan Province Quality Benchmark Enterprise
- 河南省质量诚信AAA级企业  
Henan Province Quality Integrity AAA Level Enterprise

## 荣誉展示 Honor display





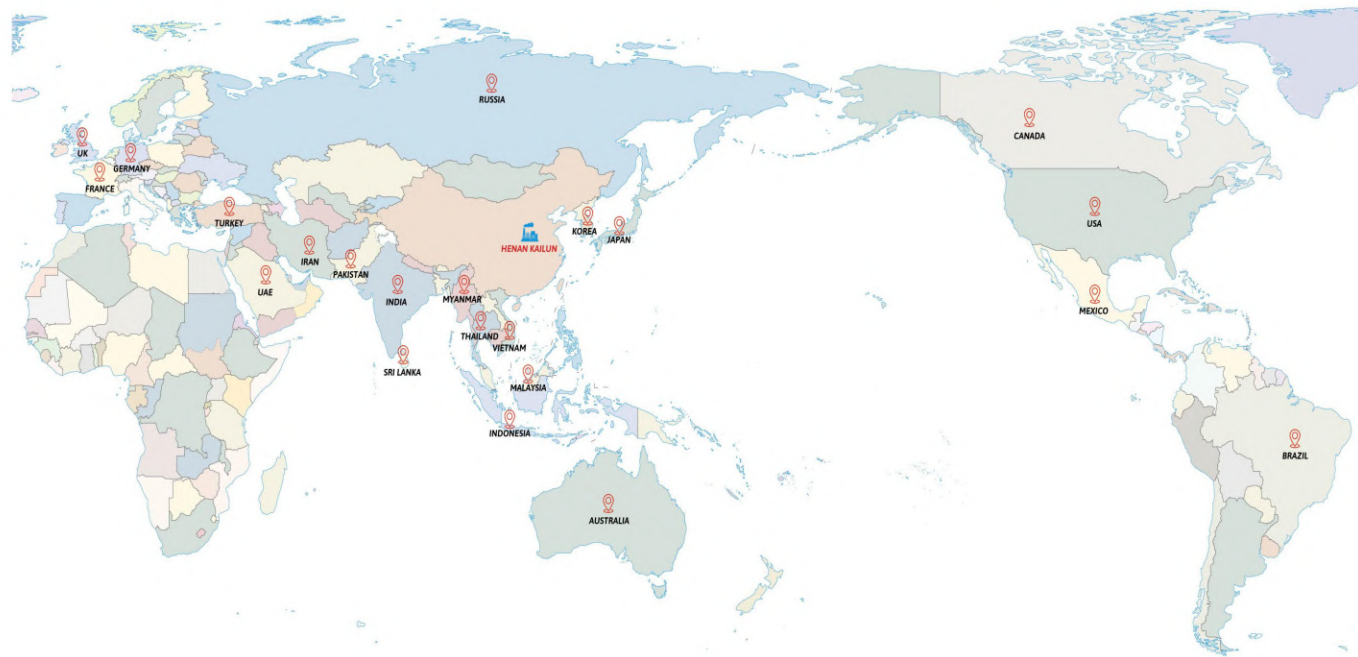




## 营销网络 Marketing network

公司始终坚持“诚信创新、追求卓越、客户至上、造福社会”的核心价值观，以优质的产品、完善的服务和诚信经营的理念，赢得了国内外广大客户的信赖，与国内各大轮胎生产企业建立了长期稳定的供需关系，产品出口60多个国家和地区，得到众多世界著名轮胎制造商的认可，品牌日趋国际化。

We have always adhered to the core values of "integrity and innovation, the pursuit of excellence, customer first, benefit society", With high-quality products, perfect service, and good faith management practices, we won the trust of customers at domestic and abroad, and significant domestically and foreign tire manufacturers to establish a long-term stable supply and demand relationship, the products are exported to more than 60 countries and regions, and many of the world's leading tire manufacturers have been recognized, and the brand is becoming increasingly internationalized.



## 绿色发展 Green development

多年来，开仑以建设环境友好型企业为己任，积极开展绿色供应链管理，研发绿色清洁生产工艺，建成了国内领先的尾气回收和利用装置、废水处理和利用装置，所有废水、废气实现达标排放。

Over the years, Kailun takes the responsibility of building an environment-friendly enterprise, actively carries out green supply chain management, develops green and clean production processes, and builds the domestic leading exhaust gas recovery and utilization device, wastewater treatment and utilization device, and all the wastewater and wastewater discharge to meet the standard.



生产车间



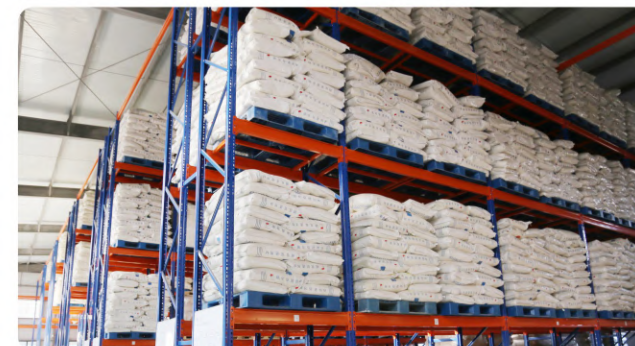
生产车间



生产车间



智能包装



成品库



原料库



## 产品介绍 Product introduction

### 防焦剂 ANTI-SCORCHING AGENT CTP(PVI)

### 防老剂 ANTIOXIDANT

TMQ(RD)  
IPPD(4010NA)  
6PPD(4020)  
BLE

### 硫化促进剂 VULCANIZATION ACCELERATOR

MBT(M)  
MBTS(DM)  
CBS(CZ)  
TMTD(TT)  
NOBS(MOR)  
TBBS(NS)  
DPG(D)

### 不溶性硫磺 INSOLUBLE SULFUR

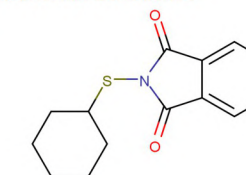
IS-60 IS-90  
HDOT-20 HS OT-20 HS OT-10 HS OT-33  
IS-8010 IS-7520 IS-7020 IS-6033  
IS-6010 IS-6005

### 橡胶硫化剂 VULCANIZING AGENT DTDM

## 防焦剂 CTP (PVI) ANTI-SCORCHING AGENT CTP (PVI)

CAS NO.: 17796-82-6

化学结构  
Chemical Structure



### 化学名称 Chemical Name

N-环己基硫代邻苯二甲酰亚胺 N-Cyclohexylthiophthalimide  
执行标准：GB/T 24801-2019

### 技术指标 Technical Index

外观 Appearance	白色或灰白色粉末 White or off-white powder	
初熔点 Melting Point (Initial)°C	≥	89.0
加热减量 Heat Loss %	≤	0.50
灰分 Ash %	≤	0.10
甲苯不溶物 Toluene Insoluble %	≤	0.50
纯度 Purity %	≥	97.0

### 性能 Performance

橡胶防焦剂CTP(PVI)对所有的硫磺硫化的二烯类和低饱和度的橡胶，如天然胶、丁苯胶、丁腈胶、丁基胶、氯丁胶、异戊胶、顺丁胶、三元乙丙胶等均有良好的防焦烧效果。

Rubber anti-scorching agent CTP (PVI) is suitable for all sulfur-cured dienes and low-saturation rubbers, such as natural rubber, styrene-butadiene rubber, nitrile rubber, butyl rubber, neoprene rubber, isoprene rubber, butadiene rubber, EPDM rubber, etc. have good anti-scorch effect

### 应用 Application

防焦剂CTP(PVI)和其他橡胶助剂配合使用时其活性不受影响，没有发泡、污染等不良的副作用，能大幅度的提高胶料的贮存稳定性，防止存放期间发生自然硫化。

When the anti-scorch agent CTP (PVI) is used in combination with other rubber additives, its activity will not be affected, and there will be no adverse side effects such as foaming and pollution. It can greatly improve the storage stability of the rubber compound and prevent natural vulcanization during storage.

### 包装形式 Packaging

塑编袋、纸塑复合袋、内衬PE袋每袋净重25kg。特殊包装按用户要求。  
Plastic woven bag /paper-plastic bag lined with PE bag. Net weight: 25kg/Bag.  
Special packaging according to user requirements.

### 储存条件 Storage Condition

应贮存在干燥的库房内，离墙壁的距离应大于0.5m。不应放置于水或暖气设备近旁，以防潮湿或变质，不能靠近火源。  
It should be stored in a dry warehouse, with a distance of more than 0.5m from the walls. It should not be placed near water or heating equipment to prevent dampness or spoilage, and should not be near a fire source.

### 有效期 Validity Period

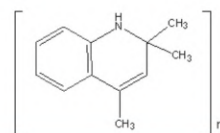
十二个月 12 Months



## 橡胶防老剂TMQ(RD) ANTIOXIDANT TMQ (RD)

CAS NO.: 26780-96-1

化学结构  
Chemical Structure



### 化学名称 Chemical Name

2,2,4- 三甲基 -1,2- 二氢喹啉聚合物 Poly(1,2-dihydro-2,2,4-trimethylquinoline)

执行标准：GB/T 8826-2019

### 技术指标 Technical Index

项目Item	优等品Superior product	一等品First grade goods
外观 Appearance	琥珀色至浅棕色片状或粒状 Amber to light brown flaky or granular	
软化点 Softening point °C	80-100	80-100
加热减量 Heat Loss %	≤ 0.30	0.30
灰分 Ash %	≤ 0.30	0.30
乙醇不溶物 Insoluble in methanol %	≤ 0.20	0.20
异丙基二苯胺含量 <sup>a</sup> Isopropyl diphenylamine content %	≤ 0.50	1.00
二、三、四聚体总量 <sup>a</sup> Total number of two, three and tetramer %	≥ 70.0	40.0

a为根据用户要求检验项目 a is the inspection item according to user requirements

### 性能 Performance

TMQ是橡胶工业中抗热、氧化性能优异的一种通用型喹啉类防老剂；  
TMQ is a general quinoline antioxidant with excellent heat and oxidative aging resistance performance in the rubber industry;

TMQ具有良好的抗热、氧化性能；

TMQ has stroing heat, oxidation and aging resistance performance;

TMQ在硫化橡胶制品中具有挥发性低、污染小的特点。

TMQ has low volatility and low pollution in vulcanized rubber products.

### 应用 Application

TMQ广泛应用于各种轮胎、胶管、胶带、胶鞋、胶布制品及其他一般工业橡胶制品，也可以用于乳胶制品。

TMQ is widely used in all kinds of tires, rubber tubes, rubber belts, rubber shoes, rubber cloth products and other general industrial rubber products, and can also be used for latex products.

### 包装形式 Packaging

塑编袋、纸塑复合袋、内衬PE袋，每袋净重25kg。

Plastic woven bag /paper-plastic bag lined with PE bag. Net weight: 25kg/Bag.

### 储存条件 Storage Condition

储存在阴凉、干燥、通风良好的环境中，避免将包装好的产品直接暴露在阳光下。

Store in cool, dry, well-ventilated conditions, avoiding exposure of the packed product to direct sunlight.

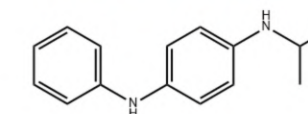
### 有效期 Validity Period

二十四个月 24 Months

## 橡胶防老剂IPPD(4010NA) ANTIOXIDANT IPPD (4010NA)

CAS NO.: 101-72-4

化学结构  
Chemical Structure



### 化学名称 Chemical Name

N-异丙基-N'-苯基对苯二胺 N-isopropyl-N'-phenyl-p-phenylenediamine

执行标准：GB/T 8828-2003

### 技术指标 Technical Index

外观 Appearance	灰紫色至紫褐色片状或粒状 Grey purples to Purplish Brown Pastilles	
熔点 Melting Point (Initial) °C	≥	70.0
加热减量 Heat Loss %	≤	0.50
灰分 Ash %	≤	0.30
纯度 Purity %	≥	92.0

### 性能 Performance

IPPD是一种优良的抗臭氧剂和抗氧化剂，具有非常优异的抗臭氧、抗疲劳、抗曲挠综合性能；

IPPD is an outstanding antioxidant and antiozonant, which exhibits strong anti-ozone, anti-fatigue and anti-bending performance;

IPPD的抗氧化性能优于普通喹啉类、胺类防老剂；

IPPD' s oxidation resistance performance is better than that of quinolone and amine antioxidants;

IPPD对铜、锰等变价金属的催化氧化具有一定的防护作用。

IPPD has a certain protective effect on the catalytic oxidation of copper, manganese and other variable-valent metals.

### 应用 Application

IPPD适用于天然胶和合成胶的橡胶配方；

IPPD is suitable for the formulations of natural rubber and synthetic rubber;

IPPD适用于传送带、胶管、电缆等，需要动静态抗氧、抗臭氧防护的橡胶制品；

IPPD is suitable for conveyor belts, rubber tubes, cables, etc., rubber products that need dynamic and static oxidation and ozone resistance protection;

IPPD可应用于对变色要求不高的橡胶制品。

IPPD can be applied to rubber products with lower requirements for discoloration.

### 包装形式 Packaging

塑编袋、纸塑复合袋、内衬PE袋，每袋净重25kg。

Plastic woven bag /paper-plastic bag lined with PE bag.

Net weight: 20kg/Bag(Powder) ; 25kg/Bag(Granule).

### 储存条件 Storage Condition

装有防老剂4010NA的包装袋应贮存在干燥的房屋内。

Bags containing antioxidant 4010NA should be stored in a dry house.

### 有效期 Validity Period

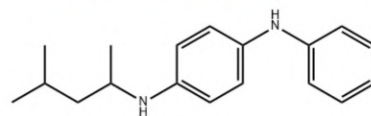
二十四个月 24 Months



## ■ 橡胶防老剂6PPD(4020) ANTIOXIDANT 6PPD (4020)

CAS NO.: 793-24-8

化学结构  
Chemical Structure



### 化学名称 Chemical Name

N-1,3-二甲基丁基-N'-苯基对苯二胺 N-(1,3-Dimethylbutyl)-N'-phenyl-p-phenylenediamine

执行标准: GB/T 21841-2019

### 技术指标 Technical Index

外观 Appearance	紫褐色至黑褐色颗粒或片状 Purplish brown to dark brown granules or flakes	
结晶点 Freezing Point °C	≥	45.5
加热减量 Heat Loss %	≤	0.50
灰分 Ash %	≤	0.10
纯度 Purity %	≥	97.0

### 性能 Performance

6PPD是一种卓越的抗臭氧剂和抗氧化剂,具有非常优异的抗臭氧、抗疲劳、抗曲挠综合性能;  
6PPD is an outstanding antioxidant and antiozonant, which exhibits strong anti-ozone, anti-fatigue and anti-bending performance;  
6PPD的抗氧化性能优于普通喹啉类、胺类防老剂;  
6PPD's oxidation resistance performance is better than that of quinolone and amine antioxidants;  
6PPD对铜、锰等变价金属的催化氧化具有一定的防护作用。  
6PPD is well compatible with rubber with lower pollution and volatility  
6PPD和橡胶的相容性好,污染性低,挥发性较小。  
6PPD has a certain protective effect on the catalytic oxidation of copper, manganese and other variable-valent metals.

### 应用 Application

6PPD适用于天然胶和合成胶的橡胶配方;  
6PPD is suitable for the formulations of natural rubber and synthetic rubber;  
6PPD适用于轮胎、传送带、胶管、电缆等,需要动静态抗氧、抗臭氧防护的橡胶制品;  
6PPD can be applied to tires, conveyor belts, rubber tubes, cables, etc., rubber products that need dynamic and static oxidation and ozone resistance protection;  
6PPD对很多溶聚、乳聚聚合物具有稳定作用;  
6PPD has a stablization effect on many solution and emulsion polymers;  
在苯乙烯单体、对甲基苯乙烯、二乙烯基苯和丙烯酸酯等的生产中,6PPD可以作为阻聚剂。  
In the production of styrene monomer, p-methylstyrene, divinylbenzene and acrylate, 6PPD can be used as a polymerization inhibitor.

### 包装形式 Packaging

塑编袋、纸塑复合袋、牛皮纸袋包装,内衬PE袋,每袋净重25kg。  
Plastic woven bag /paper-plastic bag /kraft paper bag lined with PE bag. Net weight:25kg/Bag.

### 储存条件 Storage Condition

储存在阴凉、干燥、通风良好的环境中,避免将包装好的产品直接暴露在阳光下。搬运时轻装轻卸,防止撞击。  
Store in cool, dry, well-ventilated conditions, avoiding exposure of the packed product to direct sunlight.  
Light loading and unloading during handling to prevent impact.

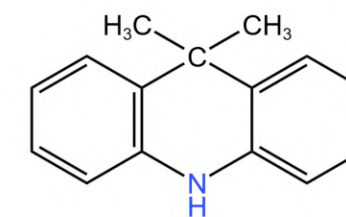
### 有效期 Validity Period

二十四个月 24 Months

## ■ 橡胶防老剂BLE RUBBER ANTIOXIDANT BLE

### 基本信息 information

化学名称/Chemical name:  
丙酮与二苯胺高温缩合物/ High temperature condensation compound of diphenylamine and acetone  
分子式/Molecular:  
结构式/Molecular structure:  
分子量/Molecular weight: 209.32  
CAS编码/CAS NO.: 68412-48-6+不稳定结构产物  
执行标准/Executive standard: HG/T 2826-1997



### 技术指标 Technical Index

项目/Item	指标/Index	
	优等品 High-class products	合格品 Acceptable end-product
外观/Appearance	深褐色粘稠体, 无结晶析出 Dark brown viscous liquid, no crystallization precipitation	
粘度30 dviscosity, Pa. S °C	2.5-5.0	5.1-7.0
密度 Density,(ρ) g/cm <sup>3</sup> (20°C)	1.08-1.10	1.08-1.12
挥发分 Fugitive constituent ≤	0.40	0.40
灰分 Ash ≤	0.30	0.30

### 性状 Properties

深褐色粘稠液体,无结晶析出。易溶于丙酮、苯等有机溶剂,不溶于水。  
Dark brown viscous liquid, no crystallization precipitation.  
Soluble in acetone, benzene and other organic solvents and insoluble in water.

### 用途 Application

在天然橡胶和氯丁、丁腈、丁苯、顺丁等合成橡胶和胶乳中可用作通用型防老剂。对热、氧、臭氧、气候和屈挠有良好的防护性能。在胶料中较易分散,适用于轮胎面、胶带、胶管等工业制品的生产。  
the natural and chloroprene rubber, nitrile, For butadiene - styrene, butadiene and other synthetic rubber latex which can be used as a versatile antioxidant. Used in heat, oxygen, ozone, climate and flex as a good protective properties. The compound dispersed more applicable to tread, belt, tube and other industrial products.

### 包装形式 Packaging

铁桶包装,每桶净重200公斤。也可根据用户需要,小PE袋包装。  
Package with metal Pail. Net weight 200kg Per Pail. Or making in small bag packaging based on customer's requirement.

### 储存条件 Storage Condition

应储存在阴凉干燥、通风良好的地方。包装好的产品应避免阳光直射。  
The product should be stored in the dry and cooling place with good ventilation. The product should be avoid hot sunshine.

### 有效期 Validity Period

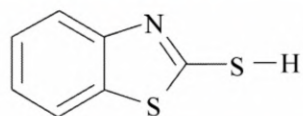
十二个月 12Months



## ■ 硫化促进剂MBT (M) ACCELERATOR MBT (M)

CAS NO.: 149-30-4

化学结构  
Chemical Structure



### 化学名称 Chemical Name

2-巯基苯并噻唑 2-Mercaptobenzothiazole  
执行标准：GB/T 11407-2013

### 技术指标 Technical Index

外观 Appearance	灰白色至淡黄色粉末 Grayish white to yellowish powder	
初熔点 Melting Point (Initial) °C	≥	170.0
加热减量 Heat Loss %	≤	0.30
灰分 Ash %	≤	0.30
筛余物(150μm) Residue on sieve(150μm)%	≤	0.10
纯度 Purity %	≥	97.0

### 性能 Performance

MBT系淡黄色或灰白色粉末，味苦，无毒，不溶于水和汽油，微溶于苯，易溶于乙酸乙酯；MBT是一种主要的酸性准速级噻唑类硫化促进剂，与促进剂MBTS和TMTD等碱性促进剂并用可以达到更高的活性。

MBT is light yellow or off-white powder, bitter in taste, non-toxic, insoluble in water and gasoline, slightly soluble in benzene, easily soluble in ethyl acetate. MBT is a main acidic quasi-speed thiazole vulcanization accelerator, which can achieve higher activity when used in combination with alkaline accelerators such as MBTS and TMTD.

### 应用 Application

促进剂MBT主要用于IR、NR、SBR、NBR、IIR与EPDM体系，其硫化临界温度低，在橡胶中易分散、无污染，主要用于制造轮胎、胶带、胶鞋和其他工业橡胶制品。

Accelerator MBT is mainly used in IR, NR, SBR, NBR, IIR, and EPDM systems. It has a low vulcanization critical temperature, is easy to disperse in rubber, and does not pollute. It is mainly used in the manufacture of tires, tapes, rubber shoes, and other industrial rubber products.

### 包装形式 Packaging

塑编袋、纸塑复合袋、内衬PE袋，每袋净重25kg。也可按客户要求做特殊包装。

Plastic woven bag /paper-plastic bag lined with PE bag.

Net weight: 20kg/Bag(Powder); 25kg/Bag(Granule).

Special packaging can also be made as per the customer's requirements.

### 储存条件 Storage Condition

产品应贮存在清洁干燥、通风良好的库房内，避免阳光直射。离墙壁的距离应大于0.5m，并不得靠近自来水管、下水道和取暖装置，以防止潮湿和变质，更不得靠近火源。

Products should be stored in a clean, dry, well-ventilated warehouse, away from direct sunlight. The distance from the wall should be greater than 0.5m, and should not be close to water pipes, sewers and heating devices to prevent moisture and deterioration, and should not be close to the fire source.

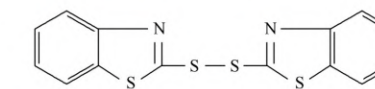
### 有效期 Validity Period

二十四个月 24 Months

## ■ 硫化促进剂MBTS (DM) ACCELERATOR MBTS (DM)

CAS NO.: 120-78-5

化学结构  
Chemical Structure



### 化学名称 Chemical Name

二硫化二苯并噻唑 2,2'-Dithiobis(benzothiazole)  
执行标准：GB/T 11408-2013

### 技术指标 Technical Index

外观 Appearance	灰白色至淡黄色粉末或颗粒 Grayish white to yellowish powder or granule		
	形态 Form	粉末 Powder	颗粒 Granule
初熔点 Melting Point (Initial) °C	≥	≥ 164.0	164.0
加热减量 Heat Loss %	≤	≤ 0.40	0.40
灰分 Ash %	≤	≤ 0.50	0.50
筛余物(150μm), Residue on sieve(150μm)%	≤	≤ 0.10	---
游离MBT Free amine %	≤	≤ 1.00	1.00
纯度 Purity %	≥	≥ 95.0	95.0

### 性能 Performance

- 促进剂MBTS是一种具有显著后效性的噻唑类促进剂，可产生平坦和中速硫化，硫化温度较高，操作安全，易分散，无污染，硫化胶耐老化性好。单独使用时硫化速度较慢，通常与二硫代氨基甲酸盐、秋兰姆、醛胺类、胍类促进剂并用。Accelerator MBTS is a thiazole accelerator with significant delayed action, with high vulcanization temperature and high safe processing. The vulcanization speed is relatively slow if used alone, and is usually combined with dithiocarbamates, thiuram, aldehyde amines and guanidine accelerators.

### 应用 Application

- 促进剂MBTS是天然橡胶、合成胶、再生胶的通用型促进剂。可用于制造轮胎、胶管、胶带、一般工业橡胶制品。MBTS在氯丁胶中还可以起到增塑剂或延迟剂的作用。Accelerator MBTS is used as a universal accelerator for natural rubber, synthetic rubber and reclaimed rubber, and can be used for manufacturing tires, rubber tubes, rubber belt and general industrial rubber products.

### 包装形式 Packaging

塑编袋、纸塑复合袋、内衬PE袋，每袋净重20kg(粉末)；25kg(颗粒)。

Plastic woven bag /paper-plastic bag lined with PE bag.

Net weight: 20kg/Bag(Powder); 25kg/Bag(Granule).

### 储存条件 Storage Condition

产品应贮存在清洁干燥、通风良好的库房内，避免阳光直射。离墙壁的距离应大于0.5m，并不得靠近自来水管、下水道和取暖装置，以防止潮湿和变质，更不能靠近火源。

Products should be stored in a clean, dry, well-ventilated warehouse, away from direct sunlight. The distance from the wall should be greater than 0.5m, and should not be close to water pipes, sewers and heating devices to prevent moisture and deterioration, let alone close to the fire source.

### 有效期 Validity Period

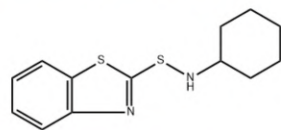
二十四个月 24 Months



## ■ 硫化促进剂CBS(CZ) ACCELERATOR CBS (CZ)

CAS NO.: 95-33-0

化学结构  
Chemical Structure



### 化学名称 Chemical Name

N-环己基-2-苯并噻唑次磺酰胺 N-Cyclohexyl-2-benzothiazolesulfenamide  
执行标准：GB/T 31332-2014

### 技术指标 Technical Index

形态 Form	粉末 Powder	油粉 <sup>b</sup> Oil powder	颗粒 Granule
外观 Appearance	灰白色至淡黄色粉末或颗粒 Grayish white to yellowish powder or granule		
初熔点 Initial melting point °C	≥ 98.0	97.0	97.0
加热减量 Heat Loss %	≤ 0.40	0.50	0.40
灰分 Ash %	≤ 0.30	0.30	0.30
筛余物 (150μm) Residue on sieve (150μm) %	≤ 0.10	0.10	—
甲醇不溶物 Insoluble in methanol %	≤ 0.50	0.50	0.50
游离胺 <sup>a</sup> Free amine %	≤ 0.50	0.50	0.50
纯度 <sup>a</sup> Purity %	≥ 96.5	95.0	96.0

a为根据用户要求检验项目 b只适用于油含量≤2%的产品  
a is the inspection item according to user requirements  
b Only applicable to products with oil content ≤2%

### 性能 Performance

促进剂CBS是一种高度活泼的后效性促进剂，抗焦烧性能优异，加工安全，硫化时间短。秋兰姆类和二硫化氨基甲酸盐类等碱性促进剂可增强其活性。

Accelerator CBS is kind of rapid retard sulfonamides accelerator with excellent scorchi resistance, safe processing and rapid curing speed. Alkaline accelerator such as thiuram and sulohide carbamate could enhance its activities.

### 应用 Application

促进剂CBS主要用于制造轮胎、电缆、胶管、胶鞋等工业橡胶制品。  
Accelerator CBS mainly used for manufacturing industrial rubber products such as tires, cables, rubber hoses, rubber shoes, etc.

### 包装形式 Packaging

塑编袋、质素复合袋，内衬PE袋，每袋净重25kg。特殊包装按用户要求。  
26. Plastic woven bag/paper-plastic bag lined with PE bag. Special packaging according to user requirements.

### 储存条件 Storage Condition

储存在阴凉、干燥、通风良好的环境中，避免将包装好的产品直接暴露在阳光下。  
Store in cool, dry, well-ventilated conditions, avoiding exposure of the packed product to direct sunlight.

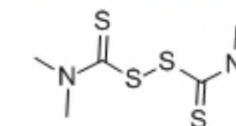
### 有效期 Validity Period

六个月 6 Months

## ■ 硫化促进剂TMTD(TT) ACCELERATOR TMTD (TT)

CAS NO.: 137-26-8

化学结构  
Chemical Structure



### 化学名称 Chemical Name

二硫化四甲基秋兰姆 Tetramethylthiuram disulfide  
执行标准：HG/T 2334-2007

### 技术指标 Technical Index

外观 Appearance	白色淡灰色粉末或粒状 White light gray powder or granular	
初熔点 Melting Point (Initial)°C	≥	140.0
加热减量 Heat Loss %	≤	0.30
灰分 Ash %	≤	0.30
筛余物(150μm) Residue on sieve %	≤	0.1
纯度 Purity %	≥	96.0

### 性能 Performance

促进剂TMTD作为天然胶、合成胶及乳胶的一种超硫化促进剂，常与噻唑类促进剂并用，也可与其他促进剂并用作为连续胶料的促进剂。因在100°C以上即缓缓分解出游离硫，故可作硫化剂，制品的耐老性和耐热性好。

Accelerator TMTD is a kind of super-vulcanization accelerator for natural rubber, synthetic rubber and latex. It is often used in combination with thiazole accelerators, and can also be used in combination with other accelerators as an accelerator for continuous rubber. Because free sulfur is slowly decomposed above 100°C, it can be used as a vulcanizing agent, and the product has good aging resistance and heat resistance.

### 应用 Application

促进剂TMTD主要用于制造轮胎、内胎、电缆、胶鞋等工业橡胶制品。农业上用作杀菌剂和杀虫剂，也可作为润滑油添加剂。

Accelerator TMTD is mainly used in the manufacture of tires, inner tubes, cables, rubber shoes and other industrial rubber products. It is used as fungicide and insecticide in agriculture, and also as lubricating oil additive.

### 包装形式 Packaging

塑编袋、纸塑复合袋、内衬PE袋每袋净重25kg。  
Plastic woven bag /paper-plastic bag lined with PE bag. Net weight: 25kg/Bag.

### 储存条件 Storage Condition

产品应贮存在干燥的库房内，离墙壁的距离应大于0.5m，不应放置于上下水或暖气设备近旁，以防潮湿或变质，贮存温度不得超过40°C。

The product should be stored in a dry warehouse, the distance from the wall should be greater than 0.5m, should not be placed near the water supply or heating equipment, to prevent moisture or deterioration, storage temperature should not exceed 40°C.

### 有效期 Validity Period

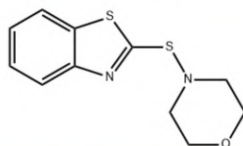
二十四个月 24 Months



## ■ 硫化促进剂NOBS (MOR) ACCELERATOR NOBS (MOR)

CAS NO.: 102-77-2

化学结构  
Chemical Structure



### 化学名称 Chemical Name

N-氧二撑基-2-苯并噻唑次磺酰胺 N-oxydiethylene-2-benzothiazole sulfenamide  
执行标准：GB/T 8829-2006

### 技术指标 Technical Index

外观 Appearance		淡黄色或橙黄色颗粒 Light yellow or orange granule
初熔点 Melting Point (Initial) °C	≥	78.0
加热减量 Heat Loss %	≤	0.50
灰分 Ash %	≤	0.40
甲醇不溶物 Insoluble in methanol %	≤	0.80
游离胺 Free amine %	≤	0.50
纯度 Purity %	≥	97.0

### 性能 Performance

促进剂NOBS是一种中性次磺酰胺类促进剂。焦烧时间较长，操作安全性好。  
Accelerator NOBS is a neutral sulfenamide accelerator. The scorch time is longer, and the operation safety is good.

### 应用 Application

促进剂NOBS作为一种后效性比CZ更明显的促进剂，特别适用于碱性炉黑的天然橡胶和合成橡胶，能提高橡胶制品的物理及老化性能。

Accelerator NOBS, as an accelerator with more obvious post-effect than CBS, is especially suitable for natural rubber and synthetic rubber of basic furnace black, and can improve the physical and aging properties of rubber products

### 包装形式 Packaging

塑编袋、纸塑复合袋、牛皮纸袋包装，内衬PE袋每袋净重25kg。  
Plastic woven bag /paper-plastic bag /kraft paper bag lined with PE bag. Net weight: 25kg/Bag.

### 储存条件 Storage Condition

储存在阴凉、干燥、通风良好的环境中，避免将包装好的产品直接暴露在阳光下。本产品贮存过程中会降解。  
Store in cool, dry, well-ventilated conditions, avoiding exposure of the packed product to direct sunlight. This product will degrade during storage.

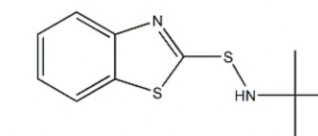
### 有效期 Validity Period

六个月 6 Months

## ■ 硫化促进剂TBBS (NS) ACCELERATOR TBBS (NS)

CAS NO.: 95-31-8

化学结构  
Chemical Structure



### 化学名称 Chemical Name

N-叔丁基-2-苯并噻唑次磺酰胺 N-tert-Butyl-2-benzothiazolesulfenamide  
执行标准：GB/T 21840-2008

### 技术指标 Technical Index

外观 Appearance		白色或淡黄色粉末、粒状 White or light yellow powder or granule
初熔点 Melting Point (Initial)°C	≥	104.0
加热减量 Heat Loss %	≤	0.40
灰分 Ash %	≤	0.30
筛余物(150μm) Residue on sieve(150μm)%	≤	0.10
甲醇不溶物 Insoluble in methanol%	≤	1.0
游离胺 Free amine%	≤	0.50
纯度 Purity%	≥	96.0

### 性能 Performance

促进剂TBBS是一种后效性促进剂，抗焦烧性能优异，加工安全，硫化时间短。  
Accelerator TBBS is kind of accelerator with delayed action, excellent scorch resistance, safe processing and rapid curing speed.

### 应用 Application

促进剂TBBS用作天然橡胶、顺丁橡胶、异戊橡胶、丁苯橡胶、天然橡胶的再生胶的后效性促进剂，主要用于轮胎、胶鞋、胶管、胶带、电缆等橡胶产品生产。

Accelerator TBBS is used as delayed action accelerator for NR,BR,IR,SBR and reclaimed rubber of NR. It is mainly used in the production of rubber products such as tires, rubber shoes, rubber tubes, rubber belt, cables, etc.

### 包装形式 Packaging

塑编袋、纸塑复合袋、内衬PE袋每袋净重25kg。  
Plastic woven bag /paper-plastic bag lined with PE bag. Net weight: 25kg/Bag.

### 储存条件 Storage Condition

储存在阴凉、干燥、通风良好的环境中，避免将包装好的产品直接暴露在阳光下。  
Store in cool, dry, well-ventilated conditions, avoiding exposure of the packed product to direct sunlight.

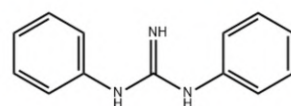
### 有效期 Validity Period

六个月 6 Months



## ■ 硫化促进剂DPG(D) ACCELERATOR DPG (D) CAS NO.: 102-06-7

化学结构  
Chemical Structure



### 化学名称 Chemical Name

二苯胍 1,3-Diphenylguanidine  
执行标准 : HG/T 2342-2010

### 技术指标 Technical Index

外观 Appearance	灰白色或白色粉末或颗粒 Greyish-white or white powder or granule	
初熔点 Melting Point (Initial)°C	≥	144.0
加热减量 Heat Loss %	≤	0.30
灰分 Ash %	≤	0.30
筛余物(150μm) Residue on sieve(150μm)%	≤	0.10
纯度 Purity %	≥	97.0

### 性能 Performance

促进剂DPG用作天然胶与合成胶的中速促进剂。常用作噻唑类、秋兰姆及次磺酰类促进剂的活性剂，与促进剂MBTS,TMTD并用时，可用于连续硫化。

Accelerator DPG is used as a medium-speed accelerator for natural rubber and synthetic rubber. It is often used as an active agent for thiazoles, thiurams and sulfonyl accelerators. It can be used for continuous vulcanization when used together with accelerators MBTS and TMTD.

### 应用 Application

促进剂DPG用于制造轮胎、胶板、鞋底、工业制品、硬质胶和厚壁制品。

Accelerator DPG is used in the manufacture of tires, rubber sheets, shoe soles, industrial products, hard rubber and thick-walled products.

### 包装形式 Packaging

塑编袋、纸塑复合袋，内衬PE袋，每袋净重25kg。特殊包装按用户要求。

Plastic woven bag/paper-plastic bag lined with PE bag.Special packaging according to user requirements.

### 储存条件 Storage Condition

储存在阴凉、干燥、通风良好的环境中，避免将包装好的产品直接暴露在阳光下。

Store in cool, dry, well-ventilated conditions, avoiding exposure of the packed product to direct sunlight.

### 有效期 Validity Period

二十四个月 24 Months

## ■ 不溶性硫磺 INSOLUBLE SULFUR CAS NO.: 9035-99-8

### 化学名称 Chemical Name

不溶性硫磺 Polymer sulfur  
执行标注 : GB/T 18952-2017

### 技术指标 Technical Index

非充油型不溶性硫磺

项目/Item	指标/Index		
	IS-60	IS-90	
外观 Appearance	黄色粉末 Yellow powder		
加热减量 ( 80°C±2°C ) Heat Loss %	≤	0.50	
灰分 ( 600°C±25°C ) Ash %	≤	0.20	
筛余物(150μm)Residue on sieve %	≤	1.0	
酸度 ( 以H <sub>2</sub> SO <sub>4</sub> 计 ) Acidity(as H <sub>2</sub> SO <sub>4</sub> ) %	≤	0.10	
总硫含量 Total content of sulfur %	≥	99.5	
不溶性硫含量 Content Insoluble Sulfur(in total S)%	≥	60.0	90.0

### 性能 Performance

不溶性硫磺主要用于橡胶工业，作为硫化剂时使橡胶制品的表面不喷霜，能增进钢-胶粘合性，由于在胶中分布均匀，能保证硫化质量，是最佳的橡胶硫化剂。

Insoluble sulfur is mainly used in the rubber industry. As a vulcanizing agent, it can prevent the surface of rubber products from blooming and can improve the adhesion between steel and rubber. Because it is evenly distributed in the rubber, it can ensure the quality of vulcanization. It is the best rubber vulcanizing agent.

### 应用 Application

不溶性硫磺广泛用于轮胎的胎体胶料，尤其是全钢丝子午轮胎中，也可用于电缆，胶辊，胶鞋等橡胶制品的胶料中。

Insoluble sulfur is widely used in tire carcass rubber, especially in all-steel radial tires, and can also be used in rubber products such as cables, rubber rollers, and rubber shoes.

### 包装形式 Packaging

塑编袋、纸塑复合袋、内衬PE袋每袋净重25kg。

Plastic woven bag /paper-plastic bag lined with PE bag. Net weight: 25kg/Bag.

### 储存条件 Storage Condition

橡胶用不溶性硫磺应贮存在干燥、通风、阴凉库房内，储存场地应注意防火、防热、防潮，不溶性硫磺产品贮存温度不超过45°C，不能接近碱性物质，防止受压结块。非充油橡胶配合剂硫磺产品的贮存符合GB15603的有关规定。

Store in cool, dry, well-ventilated conditions, avoiding exposure of the packed product to direct sunlight ; avoid mixing with alkaline substances.The storage of non-oil-filled insoluble sulfur products conforms to the relevant provisions of GB15603.

### 有效期 Validity Period

十二个月 12 Months



## 不溶性硫磺 INSOLUBLE SULFUR

CAS NO.: 9035-99-8

### 化学名称 Chemical Name

不溶性硫磺 Polymer sulfur

执行标注: GB/T 18952-2017

### 技术指标 Technical Index

充油型不溶性硫磺

项目/Item	指标/Index									
	HD OT-20	HS OT-10	HS OT-20	HS OT-33	IS 8010	IS 7520	IS 7020	IS 6033	IS 6010	IS 6005
外观 Appearance	黄色不飞扬粉末									
加热减量(80°C±2°C) Heat Loss %	≤ 0.50									
灰分(600°C±25°C) Ash %	≤ 0.15									
筛余物(150µm) Residue on sieve %	≤ -- 1.0									
酸度(以H <sub>2</sub> SO <sub>4</sub> 计) Acidity(as H <sub>2</sub> SO <sub>4</sub> )%	≤ 0.05									
总硫含量 Total content of sulfur %	78.5~81.5	89.0~91.0	79.0~81.0	66.0~68.0	89.0~91.0	79.0~81.0	79.0~81.0	66.0~68.0	89.0~91.0	94.0~96.0
不溶性硫含量 Content Insoluble Sulfur(in total S) % ≥	72.0	81.0	72.0	60.0	81.0	75.0	72.0	60.0	60.0	60.0
油含量 Oil content %	18.5~21.5	9.0~11.0	19.0~21.0	32.0~34.0	9.0~11.0	19.0~21.0	19.0~21.0	32.0~34.0	9.0~11.0	4.0~6.0
热稳定性(105°C) Thermal stability %	≥ 75.0									
热稳定性(120°C) Thermal stability %	≥ 45.0									

注: 指标中的 "--" 表示该类别产品的技术要求中没有此项目。

### 性能 Performance

不溶性硫磺主要用于橡胶工业, 作为硫化剂时使橡胶制品的表面不喷霜, 能增进钢-胶粘性, 由于在胶中分布均匀, 能保证硫化质量, 是最佳的橡胶硫化剂。

Insoluble sulfur is mainly used in the rubber industry. As a vulcanizing agent, it can prevent the surface of rubber products from blooming and can improve the adhesion between steel and rubber. Because it is evenly distributed in the rubber, it can ensure the quality of vulcanization. It is the best rubber vulcanizing agent.

### 应用 Application

不溶性硫磺广泛用于轮胎的胎体胶料, 尤其是全钢丝子午轮胎中, 也可用于电缆, 胶辊, 胶鞋等橡胶制品的胶料中。

Insoluble sulfur is widely used in tire carcass rubber, especially in all-steel radial tires, and can also be used in rubber products such as cables, rubber rollers, and rubber shoes.

### 包装形式 Packaging

塑编袋、纸塑复合袋、内衬PE袋每袋净重25kg。

Plastic woven bag / paper-plastic bag lined with PE bag. Net weight: 25kg/Bag.

### 储存条件 Storage Condition

橡胶用不溶性硫磺应贮存在干燥、通风、阴凉库房内, 储存场地应注意防火、防热、防潮, 不溶性硫磺产品贮存温度不超过45°C, 不能接近碱性物质, 防止受压结块。非充油橡胶配合剂硫磺产品的贮存符合GB15603的有关规定。

Store in cool, dry, well-ventilated conditions, avoiding exposure of the packed product to direct sunlight; avoid mixing with alkaline substances.

### 有效期 Validity Period

十二个月 12 Months

## 橡胶硫化剂 DTDM RUBBER VULCANIZING AGENT DTDM

### 基本信息 information

化学名称/Chemical name: 4-4'-二硫化二吗啉/4-4'-dithiodimorpholine

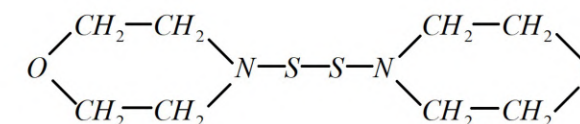
分子式/Molecular:

结构式/Molecular structure:

分子量/Molecular weight: 236.27

CAS编码/CAS NO.: 103-34-4

执行标准/Executive standard: HG/T4389-2012



### 技术指标 Technical Index

项目/Item	指标/Index
外观(目测)/Appearance(Visual inspection)	白色或浅黄色结晶(粉末) The white either the buff color crysallize (powder)
初熔点 Initial M.P °C	≥ 120.0
加热减量 Loss on drying %	≤ 0.30
灰分 Ash %	≤ 0.30

### 性状 Properties

白色或浅黄色结晶(粉末)。相对密度1.32-1.38, 无毒。不溶于水, 微溶于脂肪烃, 溶于热乙醇、丙酮和四氯化碳, 易溶于苯遇无机酸或无机碱分解。

The white either the buff color crystallize (powder). Specific gravity: 1.32- 1.38. Nontoxic. Insoluble water, sparing soluble in hydrocarbons, dissolved in hot ethanol, acetone and carbon tetrachloride, soluble in benzene.

### 用途 Application

本品可用作天然橡胶和合成橡胶的硫化剂和促进剂。使用本品进胶料不喷霜、无污染、不变色、易分散。用于有效和半效硫化体系时所得硫化胶耐热性能和耐老化性能良好。在硫化温度下能释放活性硫, 操作安全。

Sulphur donor vulcanizing agent and accelerant for efficient vulcanization and semi-efficient vulcanization cure system; non-discolouring; provide heat reversion aging resistance in NR and synthetic rubbers, non-blooming; easy to disperse; nonstaining; operation safety.

### 包装 Packaging

25公斤, 内衬PE袋的塑编袋、纸塑复合袋、牛皮纸袋。

25kg plastic woven bag. paper-plastic compound bag. Kraft paper bag.

### 储存 Storage

应储存在阴凉干燥、通风良好的地方。包装好的产品应避免阳光直射。

Keep container tightly closed in a cool, well-ventilated place. The recommended maximum storage life is 2 years when stored under normal conditions.