

**MATERIAL SAFETY DATA SHEET**  
**RUBBER VULCANIZING AGENT HD OT20**

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**1. IDENTIFICATION OF THE PRODUCT AND THE COMPANY**

<b>AZUFRERA Y FERTILIZANTES PALLARES, S.A.</b> <b>Avenida Europa 1 – 7 (Pol.Ind. Constanti)</b> <b>43120 CONSTANTÍ – TARRAGONA - SPAIN</b> <b>TEL: + 34 977 524 650    FAX: + 34 977 524 651</b> <a href="http://www.afepasa.com">www.afepasa.com</a>	<b>Product name:</b> RUBBER VULCANIZING AGENT HD OT20 <b>Chemical name:</b> Mixture of insoluble sulphur and naphthenic oil <b>Synonyms:</b> None			
	<b>Component</b>	<b>Molecular formula</b>	<b>CAS Nº</b>	<b>EC(EINECS):</b>
	Sulfur	S	7704-34-9	231-722-6
<b>Identified uses:</b> Industrial (used as vulcanizing agent for tire industry)	Naphthenic oil	NP	64742-53-6	265-156-6

**2. HAZARDS IDENTIFICATION**

PHYSICAL/CHEMICAL	TOXICOLOGICAL (SYMPTOMS)
Non-flying yellow powder, very slight odour	<b>Inhalation:</b> Nuisance dust. May cause coughing, sneezing or labored breathing if large amounts are inhaled.
Keeping in cool, dry warehouse, to guarantee quality	<b>Ingestion/Aspiration:</b> Swallowing a relatively large amount of this material is unlikely to produce serious illness or death.
The product may cause an allergic skin reaction. Flammable, non-explosive	<b>Skin contact:</b> Causes mild skin irritation. Causes drying of the skin. May cause a rash and itching of the skin. Mild skin irritation (after prolonged and repeated contact), signs/symptoms can include redness, swelling and itching.
	<b>Eye contact:</b> May irritate eyes. Mild irritation: signs/symptoms can include redness, swelling, pain and tearing.
	<b>General toxic effects:</b> May cause skin and eye irritation

**3. COMPOSITION / INFORMATION ABOUT THE COMPONENTS**

<b>General composition:</b> Sulphur (80% ± 1%) and naphthenic oil (20% ± 1%)			
Dangerous components	Range %	Hazard class and category code(s)	Hazard statement code(s)
Sulphur	79-81	NP	NP
Naphthenic oil	19-21	R45	S53-45

**4. FIRST-AID MEASURES**

<b>Inhalation:</b> Supply fresh air. If required provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
<b>Ingestion / aspiration:</b> Consult doctor if symptoms persist.
<b>On skin:</b> Remove contaminated clothing and footwear. Wash with plenty of water and soap the affected areas for at least 15 minutes. Get medical attention if irritation persists.
<b>In eyes:</b> Wash with plenty of water for at least 15 minutes. Seek medical attention if irritation persists. DO NOT RUB EYES.
<b>Notes to physician:</b> No specific antidote. Treatment based on sound judgement of physician and individual reactions of patient.

**5. FIRE-FIGHTING MEASURES**

<b>Extinguishing agents:</b>	CO <sub>2</sub> , dry chemicals, sand and water spray.
<b>Non suitable extinguishing agents</b>	NP.
<b>Combustion products:</b>	CO <sub>2</sub> , SO <sub>2</sub> .
<b>Special measures:</b>	Fight fire from a safe distance and from protected location. Flammable dust when in finely divided and highly suspended state. Do not allow runoff to enter waterways.
<b>Special hazards:</b>	Toxic emissions may result if product is involved in a fire. Fire produces toxic sulfur dioxide gas.
<b>Protective equipment:</b>	Independent respiration equipment. Heat resistant suits, gloves and protective glasses.

## 6. ACCIDENTAL SPILL MEASURES

<p><b>Precautions for the environment</b> Avoid spills to sewer and drains and dispersion of the product. The product is harmful to drinking water.</p>	<p><b>Personal precautions</b> Avoid direct contact or inhalation of the product. Keep unnecessary people away. Ventilate closed spaces before entering</p>
<p><b>Clean-up methods:</b> Solid spills are shovelled into closed plastic bags or containers for later recovery or disposal</p>	<p><b>Personal protection</b> In presence of powdery product, use full-face protective mask with filter. In presence of vapours from hot product self-contained breathing apparatus is recommended. Wear goggles, and rubber overclothing, including gloves</p>

## 7. HANDLING AND STORAGE

<p><u>Handling</u> <b>General precautions:</b> Prevent flames or sparks. Use protection gloves and glasses. Do not smoke, eat or drink while handling. Wash thoroughly with soap and water after handling. <b>Specific conditions:</b> Good local exhaust ventilation. Protective mask in presence of powdery product.</p>
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<p><u>Storage</u> <b>Storage conditions:</b> Store at room temperature. Cool and well ventilated place. <b>Incompatible materials:</b> Concentrated acids and alkali.</p>
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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>Personal protection gear:</b>	
Respiratory	Mask for respiratory protection, certified for pulverized products
Ocular	Security glasses or face-shield to avoid powdery product
Cutaneous	Impermeable gloves and appropriate clothing to avoid skin contact
Skin and body	Showers and eye-washers in working areas.

**General precautions:** Local exhaust ventilation. Avoid prolonged contact and/or inhalation.

**Specific hygienic measures:**  
Washing/showering facilities with a non-solvent based skin cleaner, hot water and soap must be provided and used. Overalls should be changed frequently and dry cleaned. Grossly contaminated clothing should be changed immediately. Use skin reconditioning cream after work.

**Exposure controls:**  
Engineering controls are not usually necessary if good hygiene practices are followed. Before eating, drinking or smoking, wash face and hands thoroughly with water and soap. Avoid unnecessary skin contact. Impervious gloves and apron are recommended to prevent skin contact. For operations where eye or face contact can occur, wear eye protection such as chemical splash-proof goggles or face shield. Where exposures are below the Permissible Exposure Limit, no respiratory protection is required. Where exposures exceeds the PEL, use respirator.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Aspect:</b> Powder	<b>pH (1% solution):</b> Not Relevant
<b>Colour:</b> Yellow	<b>Odour:</b> Slight
<b>Boiling point:</b> 444° C (sulfur); Naphthenic oil: NP	<b>Melting/Freezing point:</b> 108°C (sulfur); naphthenic oil: NP
<b>Flash point:</b> 270°C(sulfur); Naphthenic oil: NP	<b>Auto ignition temperature:</b> 260° C (sulfur)
<b>Explosive properties:</b> NP	<b>Oxidizing properties:</b> NP
<b>Surface tension:</b> NP	<b>Density :</b> 1.58 g/cm <sup>3</sup>
<b>Vapour pressure:</b> NP	<b>Partition coefficient (n-octanol/water):</b> NP
<b>Water solubility:</b> Insoluble	<b>Solubility:</b> Slightly soluble in organic solvents
<b>Other data:</b>	

## 10. STABILITY AND REACTIVITY

<b>Stability:</b> Stable at room temperature.	<b>Conditions to avoid:</b> Keep away from heat, sparks or flames. Avoid any source of ignition. Excessive heat. Contact with basic substances
<b>Material to avoid:</b> Avoid contact with acidic, basic or oxidizing agents. Do not expose to amines. Contact with copper. Non-protected steel. Avoid contamination of product with small amounts of water	
<b>Risk of polymerization:</b> Not Relevant	<b>Hazardous decomposition/combustion products:</b> Fire may produce sulfur dioxide gas and carbon dioxide

## 11. TOXICOLOGICAL INFORMATION

<b>Routes of exposure:</b> Mainly contact with skin, eyes and inhalation. Ingestion is not frequent
<b>Carcinogenicity:</b> NP
<b>Reproductive toxicity:</b> NP.
<b>Medical conditions likely to be aggravated by exposure:</b> NP

## 12. ECOLOGICAL INFORMATION

<b>Pollutant potential:</b>
<b>Persistence and degradability:</b> There are no data concerning the persistence and degradability of the product in natural systems.
<b>Mobility/bioaccumulation:</b> No data on the bioaccumulation for the product were found in literature. However, based on its insolubility in water it is not expected to appreciably bioconcentrate.
<b>Ecotoxicological effects:</b> Non-toxic to aquatic organisms.

## 13. DISPOSAL CONSIDERATIONS

<b>Methods of disposal (surplus):</b> Recycling and recovery of the material when possible
<b>Waste:</b> this product is not regarded as hazardous waste. Dispose in accordance with local legislation. Buy in a licensed landfill or burn in an approved incinerator according to local authorities.
<i>Disposal:</i> Dissolve or mix the material with combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
<i>Handling:</i> Labelled and sealed containers.

## 14. TRANSPORT INFORMATION

<b>Special precautions:</b> Transport in well-sealed containers. Prevent physical disturbances and keep away from heat sources and from substances of a basic character.
<b>Complementary information:</b>
<b>Name for transport:</b> SULPHUR (solid)
<b>Road –ADR /Railroad – RID / Maritime - IMO:</b> Not dangerous
<b>IATA:</b> Substance not dangerous according to special disposition A105

## 15. REGULATORY INFORMATION

<b>Classification:</b> Skin Sens. 1
<b>Hazard statements:</b>
H350: May cause cancer
<b>Precautionary statements:</b>
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P332+P313: If skin irritation occurs: Get medical advice/attention.

## 16. OTHER INFORMATION

**Hazard Class and Category shown in the document:** Not relevant

**Data bases consulted:**

EINECS: European Inventory of Existing Commercial Substances.

HSDB: US National Library of Medicine.

TSCA: Toxic Substances Control Act, US Environmental Protection Agency

RTECS: US Department. of Health & Human Services

**Regulations consulted:**

Regulation CE no. 1907/2006 concerning registration, evaluation, authorization and restriction of chemical substances and preparations (REACH)

Dir. 67/548/CEE of hazardous substances (including corrections and adaptations in force).

Dir. 1999/45/CE of hazardous preparations (including corrections and adaptations in force).

Dir. 91/689/CEE of hazardous residues / Dir. 91/156/CEE of the management of residues

Royal Decree 363/95: Regulations on the notification of new substances and on classification, packaging and labelling of hazardous substances.

Royal Decree 255/2003: Regulations on classification, packaging and labelling of hazardous preparations.

European Agreement on International Transport of Dangerous Goods by Road (ADR).

Regulation concerning the International Transport of Dangerous Goods by Rail (RID).

International Maritime Dangerous Goods (IMDG).

Regulations of the International Air Transport Association (IATA) concerning the transport of Dangerous Goods by Air.

**GLOSSARY:**

**CAS: Chemical Abstract Service**

**IARC: International Agency for Research on Cancer**

**TDL<sub>0</sub>: Toxic Dose Minimum**

**TLV: Threshold Level Value**

**TWA: Time Weighted Average**

**STEL: Short Time Exposure Limit**

**REL: Reference Exposure Limit**

**PEL: Permissible Exposure Level**

**VLA: Environmental Value Level**

**LD<sub>50</sub>: Lethal Dose Average**

**LC<sub>50</sub>: Lethal Concentration Average**

**LDL<sub>0</sub>: Lethal Dose Minimum**

**BEI: Biological Exposure Index**

**EC<sub>50</sub>: Effective Concentration Average**

**IC<sub>50</sub>: Inhibiting Concentration Average**

**BOD: Basic Oxygen Demand**

**NA: Not Applicable**

**Changes concerning the last revision:** Update REACH regulation

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

## SECTION 17. EXPOSURE SCENARIO

### 1. Use of Sulfur in Rubber Production and Processing; industrial

Section 1 Exposure Scenario Title: Sulfur	
<b>Title</b>	
Rubber Production and Processing	
<b>Use Descriptor</b>	
Sector(s) of Use	3,10,11
Process Categories	1,2,3,4,5,6,7,8a,8b,9,13,14,15,21 <i>Further information on the mapping and allocation of PROC codes is contained in Table 9.1</i>
Environmental Release Categories	1,4,6d
Specific Environmental Release Category	ESVOC SpERC 4.19.v1
<b>Processes, tasks, activities covered</b>	
Manufacture of tyres and general rubber articles, including processing of raw (uncured) rubber, handling and mixing of rubber additives, calendaring, vulcanising, cooling and finishing as well as maintenance.	
<b>Assessment Method</b>	
See Section 3.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
<b>Product characteristics</b>	
Physical form of product	Solid at STP, liquid at elevated operating temperature, vapour pressure <0.5 kPa. <b>OC29</b>
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently). <b>G13</b>
Amount used	Not applicable
Frequency and duration of use/exposure	Covers daily exposures up to 8 hours (unless stated differently). <b>G2</b>
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature). <b>OC7</b> . Assumes a good basic standard of occupational hygiene is implemented. <b>G1</b>
<b>Contributing Scenarios</b>	<b>Specific Risk Management Measures and Operating Conditions</b>
General measures (skin irritants) <b>G19</b>	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. <b>E3</b> . Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying. <b>E4</b> .
CS15 General exposures (closed systems)	No other specific measures identified. <b>EI20</b>
CS15 General exposures (closed systems) CS56 With sample collection	No other specific measures identified. <b>EI20</b>
CS15 General exposures (closed systems) CS55 Batch process CS56 With sample collection	No other specific measures identified. <b>EI20</b>
CS16 General exposures (open systems)	No other specific measures identified. <b>EI20</b>
CS30 Mixing operations (open systems)	No other specific measures identified. <b>EI20</b>
CS64 Calendaring (including Banburys) CS70 Vulcanisation CS71 Cooling cured articles	No other specific measures identified. <b>EI20</b>
CS10 Spraying	No other specific measures identified. <b>EI20</b>
CS90 Small scale weighing	No other specific measures identified. <b>EI20</b>
CS4 Dipping, immersion and pouring	No other specific measures identified. <b>EI20</b>
CS73 Pressing uncured rubber blanks	No other specific measures identified. <b>EI20</b>
CS102 Finishing operations	No other specific measures identified. <b>EI20</b>
CS36 Laboratory activities	No other specific measures identified. <b>EI20</b>
CS14 Bulk transfers CS81 Dedicated facility	No other specific measures identified. <b>EI20</b>
CS39 Equipment Cleaning and Maintenance	No other specific measures identified. <b>EI20</b>
<b>Additional information on the basis for the allocation of the identified OCs and RMMs is contained in Appendices 1 to 2</b>	
Section 2.2 Control of environmental exposure	

<b>Not applicable</b>
<b>Section 3 Exposure Estimation</b>
<b>3.1. Health</b>
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. <b>G21.</b>
<b>3.2. Environment</b>
Not applicable
<b>Section 4 Guidance to check compliance with the Exposure Scenario</b>
<b>4.1. Health</b>
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. <b>G32.</b> Risk Management Measures are based on qualitative risk characterisation. <b>G37.</b>
Available hazard data do not support the need for a DNEL to be established for other health effects. <b>G36.</b> Users are advised to consider national Occupational Exposure Limits or other equivalent values. <b>G38</b>
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. <b>G23.</b>
<b>4.2. Environment</b>
Not applicable