SAFETY DATA SHEET

PERKADOX 14S-FL

Version 1 Revision Date 04/16/2015 Print Date 07/02/2015 US / Z8

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	PERKADOX 14S-FL
Product Use Description	:	Cross-linking agent
Chemical characterization	:	Di(tert-butylperoxyisopropyl)benzene
Company	:	Akzo Nobel Functional Chemicals LLC 525 West Van Buren Chicago IL 60607-3823 USA
Telephone	:	+18008287929
Fax	:	+13125447188
E-mail address	:	RegulatoryAffairs@akzonobel.com
Emergency telephone	:	AkzoNobel: +31 57 06 79211 CHEMTREC - USA: 1-800-424-9300 CANUTEC - CANADA: 1-613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	flakes
Color	white
Odor	faint
Hazard Summary	Risk of dust explosion.

GHS Classification

Organic peroxides, Type D
Chronic aquatic toxicity, Category 4

GHS Label element

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H242 Heating may cause a fire.
H413 May cause long lasting harmful effects to aquatic life.

Precautionary Statements : **Prevention:**
P210 Keep away from heat/sparks/open flames/hot surfaces. -

No smoking.
P220 Keep away from dirt, rust, chemicals in particular.
P234 Keep only in original container.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
Response:
P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.
Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P410 Protect from sunlight.
P420 Store away from other materials.
Disposal:
P501 Dispose of contents/container in accordance with local regulation.

Potential Health Effects

Inhalation	:	Product dust may be irritating to respiratory system.
Skin	:	Product dust may be irritating to skin.
Eyes	:	Product dust may be irritating to eyes.
Ingestion	:	Not expected to be irritating.
Aggravated Medical Condition	:	None known.
Symptoms of Overexposure	:	The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.

Carcinogenicity:

IARC	:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

3. COMPOSITION/INFORMATION ON INGREDIENTS

No hazardous ingredients

4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Consult a physician. Show this material safety data sheet to the doctor in attendance.
Inhalation	:	Remove to fresh air. Rinse nose and mouth with water.
Skin contact	:	Take off contaminated clothing and shoes immediately. Wash the skin immediately with soap and water.
Eye contact	:	Rinse with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
Ingestion	:	Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

Notes to physician

Symptoms	:	The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.
Treatment	:	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire fighting / Specific hazards arising from the chemical	:	CAUTION: reignition may occur. Supports combustion. Do not use a solid water stream as it may scatter and spread fire. Water spray may be ineffective unless used by experienced firefighters. Do not allow run-off from fire fighting to enter drains or water courses. Heating may cause decomposition with release of toxic fumes. Risks of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust, e.g. on floors and ledges.
Combustion products	:	Fire will produce smoke containing hazardous combustion products (see section 10).

Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus.
Further information	:	Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

See also Section 9. Physical and chemical properties: Safety data

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Avoid dust formation. Ensure adequate ventilation. Remove all sources of ignition.
Environmental precautions	:	Prevent product from entering drains. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up / Methods for containment	:	Keep wetted with water. Soak up with inert absorbent material and dispose of as hazardous waste. Confinement must be avoided. Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal. Never return spills in original containers for re-use.
Additional advice	:	For personal protection see section 8.

7. HANDLING AND STORAGE

Handling

Advice on safe handling	:	For personal protection see section 8. Avoid creating dust. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not smoke. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	:	Use explosion protected equipment. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. No sparking tools should be used. Keep away from reducing agents (e.g. amines), acids, alkalies and heavy metal compounds (e.g. accelerators, driers, metal soaps). Do not cut or weld on or near this container even when empty. Keep away from combustible material.
Temperature class	:	It is recommended to use electrical equipment of temperature group T3. However, autoignition can never be excluded.

Storage

Requirements for storage areas and containers	:	No smoking. Keep in a well-ventilated place. Keep in a dry place. Electrical installations / working materials must comply with the technological safety standards. Store at room temperature in the original container. Keep only in original container. Store away from other materials.
Maximum storage temperature:	:	20 °C (68 °F)
Other data	:	No decomposition if stored and applied as directed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Contains no substances with occupational exposure limit values.

Occupational exposure limits of decomposition products

Decomposition products	CAS-No.	Value	Control parameters	Update	Basis	Form of exposure
tert-Butanol	75-65-0, 75-65-0	TWA	100 ppm	2007-01-01	ACGIH	
	Further information	:	Central Nervous System impairment A4: Not classifiable as a human carcinogen			
		TWA	100 ppm 300 mg/m3	2013-10-08	NIOSH REL	
		ST	150 ppm 450 mg/m3	2013-10-08	NIOSH REL	
		TWA	100 ppm 300 mg/m3	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m3 is approximate.			
		TWA	100 ppm 300 mg/m3	1989-01-19	OSHA P0	
		STEL	150 ppm 450 mg/m3	1989-01-19	OSHA P0	
Acetone	67-64-1, 67-64-1	TWA	500 ppm	2013-03-01	ACGIH	
	Further information	:	Central Nervous System impairment Hematologic effects Upper Respiratory Tract irritation Eye irritation (): Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section) A4: Not classifiable as a human carcinogen			
		STEL	750 ppm	2013-03-01	ACGIH	
	Further information	:	Central Nervous System impairment Hematologic effects Upper Respiratory Tract irritation Eye irritation (): Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) BEI: Substances for which there is a Biological Exposure Index or Indices			

			(see BEI® section) A4: Not classifiable as a human carcinogen			
		TWA	250 ppm 590 mg/m3	2013-10-08	NIOSH REL	
		TWA	1,000 ppm 2,400 mg/m3	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m3 is approximate.			
		TWA	750 ppm 1,800 mg/m3	1989-01-19	OSHA P0	
		STEL	1,000 ppm 2,400 mg/m3	1989-01-19	OSHA P0	
	Further information	:	h: The acetone STEL does not apply to the cellulose acetate fiber industry. It is in effect for all other sectors.			

Engineering measures
Explosion proof ventilation recommended.
Provide appropriate exhaust ventilation at places where dust is formed.

Personal protective equipment

Eye/face protection	:	Tightly fitting safety goggles
Hand protection	:	Glove material: butyl-rubber
	:	Glove material: Neoprene
Skin and body protection	:	Protective suit
Respiratory protection	:	Half mask with a particle filter P2 (EN 143)
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Environmental exposure controls

General advice	:	Prevent product from entering drains. If the product contaminates rivers and lakes or drains inform respective authorities.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	:	flakes
Color	:	white
Odor	:	faint
Odor Threshold	:	No data available

Safety data

pH	:	neutral
Melting point	:	41.5 - 51 °C
Boiling point	:	Decomposes below the boiling point.

Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Decomposition products may be flammable.
Lower explosion limit	:	No data available
Upper explosion limit	:	No data available
Vapor pressure	:	0.6 hPa at 100 °C 0.000091 hPa at 25 °C Method: Calculation method
Relative vapor density	:	Not applicable
Relative density	:	1.042 at 20 °C
Water solubility	:	at 20 °C insoluble
Solubility in other solvents	:	Soluble in most organic solvents.
Partition coefficient: n-octanol/water	:	log Pow: 7.3 at 20 °C
Autoignition temperature	:	Not applicable
Decomposition temperature	:	SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the SADT. Contact with incompatible substances can cause decomposition below the SADT.
Self-Accelerating decomposition temperature (SADT)	:	80 °C
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	Not classified as oxidizing.
Active Oxygen Content	:	9.1 %
Organic peroxides	:	96 %

This material safety datasheet only contains information relating to safety and does not replace any product information or product specification.

10. STABILITY AND REACTIVITY

Conditions to avoid	:	Confinement must be avoided. Heat, flames and sparks. For safety, store below:

		20 °C (68 °F)
Materials to avoid	:	Contact with incompatible materials will result in hazardous decomposition. For queries regarding the suitability of other materials please contact the supplier. Do not mix with peroxide accelerators, unless under controlled processing. Use only stainless steel 316, PP, polyethylene or glass-lined equipment. Acids and bases Iron Copper Reducing agents Heavy metals Rust
Hazardous decomposition products	:	para-Diisopropanolbenzene tert-Butanol Acetone Carbon oxides Diacetylbenzene
Thermal decomposition	:	SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the SADT. Contact with incompatible substances can cause decomposition below the SADT.
Reactivity	:	Stable under normal conditions.
Chemical stability	:	Stable under recommended storage conditions.
Hazardous reactions	:	Dust may form explosive mixture in air.
Self-Accelerating decomposition temperature (SADT)	:	80 °C (176 °F)

11. TOXICOLOGICAL INFORMATION

PRODUCT INFORMATION:

Toxicology Assessment

Further information	:	No further data available.

Carcinogenicity:

IARC	:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential

carcinogen by OSHA.

NTP : No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

12. ECOLOGICAL INFORMATION

PRODUCT INFORMATION:

Ecotoxicology Assessment

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
May cause long lasting harmful effects to aquatic life.

Further information on ecology

Hazardous to the ozone layer

Regulation : 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

13. DISPOSAL CONSIDERATIONS

Product : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Hazardous waste
Dispose of contents/container in accordance with local regulation.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not burn, or use a cutting torch on, the empty drum.
Due to the high risk of contamination recycling/recovery is not recommended.
Follow all warnings even after the container is emptied.

14. TRANSPORT INFORMATION

International Regulation

IATA-DGR

UN/ID No.	:	UN 3106
Proper shipping name	:	Organic peroxide type D, solid (Di(tert-butylperoxyisopropyl)benzene)
Class	:	5.2
Subsidiary risk	:	HEAT
Packing group	:	Not Assigned
Labels	:	5.2 (HEAT)
Packing instruction (cargo	:	570

aircraft)
Packing instruction (passenger aircraft) : 570
Environmentally hazardous : no

IMDG-Code

UN number	:	UN 3106
Proper shipping name	:	ORGANIC PEROXIDE TYPE D, SOLID (Di(tert-butylperoxyisopropyl)benzene)
Class	:	5.2
Packing group	:	Not Assigned
Labels	:	5.2
EmS Code	:	F-J, S-R
Marine pollutant	:	no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	:	UN 3106
Proper shipping name	:	Organic peroxide type D, solid
	:	(Di(tert-butylperoxyisopropyl)benzene, 96%)
Class	:	5.2
Packing group	:	II
Labels	:	5.2
ERG Code	:	145
Marine pollutant	:	no
Reportable Quantity	:	This product does not contain an environmentally hazardous substance per 49 CFR 172.101, Appendix A.

15. REGULATORY INFORMATION

Notification status

CH INV	:	YES. On the inventory, or in compliance with the inventory
TSCA	:	YES. All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.
DSL	:	YES. All components of this product are on the Canadian DSL.
AICS	:	YES. On the inventory, or in compliance with the inventory
NZIoC	:	NO. Not in compliance with the inventory
ENCS	:	YES. On the inventory, or in compliance with the inventory
ISHL	:	YES. On the inventory, or in compliance with the inventory
KECI	:	YES. On the inventory, or in compliance with the inventory
PICCS	:	YES. On the inventory, or in compliance with the inventory
IECSC	:	YES. On the inventory, or in compliance with the inventory

For explanation of abbreviations, see section 16.

TSCA list : Not relevant
OSHA Hazards : Combustible dust, Organic Peroxide

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Reactivity Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals subject to disclosure and listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

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California Prop. 65

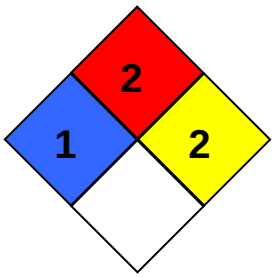
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

16. OTHER INFORMATION

Further information

HMIS Classification : Health Hazard: 1
Flammability: 2
Physical hazards: 2

NFPA Classification : Health Hazard: 1
Fire Hazard: 2
Reactivity Hazard: 2



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Notification status explanation

REACH	1907/2006 (EU)
CH INV	Switzerland. New notified substances and declared preparations
TSCA	United States TSCA Inventory
DSL	Canadian Domestic Substances List (DSL)
AICS	Australia Inventory of Chemical Substances (AICS)

NZIoC	New Zealand. Inventory of Chemical Substances
ENCS	Japan. ENCS - Existing and New Chemical Substances Inventory
ISHL	Japan. ISHL - Inventory of Chemical Substances
KECI	Korea. Korean Existing Chemicals Inventory (KECI)
PICCS	Philippines Inventory of Chemicals and Chemical Substances (PICCS)
IECSC	China. Inventory of Existing Chemical Substances in China (IECSC)

Further information

Revision Date	04/16/2015

The information in this material safety data sheet should be provided to all who will use, handle, store, transport or otherwise be exposed to this product. The user must determine the appropriate measures that need to be implemented for the use and handling of this product in the c ontext of the user's operations and use of this product. The information contained herein supersedes all previously issued bulletins on the subject matter covered. If the date on this document is more than three years old,call to make certain that this sheet is current. No warranty is made as to the product's merchantability or fitness for any particular purpose, or that any suggested use will not infringe any patent. User must determine for himself, by preliminary tests or otherwise, the suitability of this product for his purposes, including mixing with other products. Nothing contained herein shall be construed as granting or extending any license under any patent.

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.