SAFETY DATA SHEET

SPECIALTY ELECTRONIC MATERIALS UK LIMITED

Safety Data Sheet according to Reg. (EU) No 2015/830

Product name: MOLYKOTE® BG-20

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SPECIALTY ELECTRONIC MATERIALS UK LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier
Product name: MOLYKOTE® BG-20

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Lubricants and lubricant additives

1.3 Details of the supplier of the safety data sheet
COMPANY IDENTIFICATION
SPECIALTY ELECTRONIC MATERIALS UK
LIMITED
KINGS COURT, LONDON ROAD
STEVENAGE
England
SG1 2NG
UNITED KINGDOM

Customer Information Number: 800-3876-6838
SDSQuestion-EU@dupont.com

1.4 EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: +(44)-870-8200418
Local Emergency Contact: +(44)-870-8200418

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008:
Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008:

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

Supplemental information
EUH210 Safety data sheet available on request.

2.3 Other hazards
This product contains no substances assessed to be PBT or vPvB at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Organic grease
3.2 Mixtures

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 38900-29-7 **EC-No.** 254-184-4 **Index-No.** –	01-2120119814-57	>= 1.0 - < 10.0 %	Nonanedioic acid, dilithium salt	Acute Tox. - 4 - H302
CASRN 71735-74-5 **EC-No.** 275-965-6 **Index-No.** –	–	>= 1.0 - < 2.5 %	O,O-Diisopropyl-S-2-ethoxycarbonyl ethyl dithiophosphate	Aquatic Chronic - 3 - H412
CASRN 26780-96-1 **EC-No.** 500-051-3 **Index-No.** –	–	>= 1.0 - < 2.5 %	Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer	Aquatic Chronic - 3 - H412
CASRN 597-82-0 **EC-No.** 209-909-9 **Index-No.** –	–	>= 1.0 - < 2.5 %	PHOSPHOROTHIOIC ACID, 0,0,0-TRIPHENYL ESTER	Aquatic Chronic - 4 - H413

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures
General advice:
If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin contact: Wash off with plenty of water.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

4.2 Most important symptoms and effects, both acute and delayed:
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

4.3 Indication of any immediate medical attention and special treatment needed
Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media: Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture
Hazardous combustion products: Carbon oxides Sulphur oxides Oxides of phosphorus Nitrogen oxides (NOx) Metal oxides

Unusual Fire and Explosion Hazards: Exposure to combustion products may be a hazard to health.

5.3 Advice for firefighters
Fire Fighting Procedures: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Follow safe handling advice and personal protective equipment recommendations.

6.2 Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up: Wipe up or scrape up and contain for salvage or disposal. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections:
See sections: 7, 8, 11, 12 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice.
Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

7.2 Conditions for safe storage, including any incompatibilities: Keep in properly labelled containers. Store in accordance with the particular national regulations.

Do not store with the following product types: Strong oxidizing agents.
Unsuitable materials for containers**:** None known.

7.3 Specific end use(s): See the technical data sheet on this product for further information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Derived No Effect Level
Nonanedioic acid, dilithium salt
Workers

Acute systemic effects		***Acute local effects***		***Long-term systemic effects***		***Long-term local effects***	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
13.5 mg/kg bw/day	n.a.	n.a.	n.a.	13.5 mg/kg bw/day	n.a.	0.172 mg/cm2	n.a.

Consumers

Acute systemic effects			*Acute local effects*		*Long-term systemic effects*			*Long-term local effects*	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

O,O-Diisopropyl-S-2-ethoxycarbonyl ethyl dithiophosphate

Workers

Acute systemic effects		*Acute local effects*		*Long-term systemic effects*		*Long-term local effects*	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	2.08 mg/kg bw/day	14.7 mg/m3	n.a.	n.a.

Consumers

Acute systemic effects			*Acute local effects*		*Long-term systemic effects*			*Long-term local effects*	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	1.04 mg/kg bw/day	3.61 mg/m3	1.04 mg/kg bw/day	n.a.	n.a.

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer

Workers

Acute systemic effects		*Acute local effects*		*Long-term systemic effects*		*Long-term local effects*	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	1 mg/kg bw/day	7 mg/m3	n.a.	n.a.

Consumers

Acute systemic effects			*Acute local effects*		*Long-term systemic effects*			*Long-term local effects*	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	0.6 mg/kg bw/day	1.8 mg/m3	0.6 mg/kg bw/day	n.a.	n.a.

PHOSPHOROTHIOIC ACID, 0,0,0-TRIPHENYL ESTER

Workers

Acute systemic effects		*Acute local effects*		*Long-term systemic effects*		*Long-term local effects*	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	0.42 mg/kg bw/day	2.94 mg/m3	n.a.	n.a.

Consumers

Acute systemic effects	*Acute local effects*	*Long-term systemic effects*	*Long-term local effects*

Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	0.21 mg/kg bw/day	0.72 mg/m3	n.a.	n.a.	n.a.

Predicted No Effect Concentration

Nonanedioic acid, dilithium salt

Compartment	**PNEC**
Fresh water	0.02 mg/l
Marine water	0.002 mg/l

O,O-Diisopropyl-S-2-ethoxycarbonyl ethyl dithiophosphate

Compartment	**PNEC**
Fresh water	0.03 mg/l
Marine water	0.003 mg/l
Intermittent use/release	0.3 mg/l
Sewage treatment plant	8.5 mg/l
Fresh water sediment	0.369 mg/kg
Marine sediment	0.0369 mg/kg
Soil	0.056 mg/kg

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer

Compartment	**PNEC**
Fresh water	0.056 mg/l
Marine water	0.0056 mg/l
Intermittent use/release	0.56 mg/l
Sewage treatment plant	100 mg/l
Fresh water sediment	21 mg/kg
Marine sediment	2.1 mg/kg
Soil	4.2 mg/kg
Oral (Secondary Poisoning)	8 mg/kg food

PHOSPHOROTHIOIC ACID, 0,0,0-TRIPHENYL ESTER

Compartment	**PNEC**
Fresh water	0.02 mg/l
Marine water	0.01 mg/l
Intermittent use/release	0.02 mg/l
Sewage treatment plant	1 mg/l
Fresh water sediment	4.19 mg/kg
Soil	1.66 mg/kg

8.2 Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields). Safety glasses (with side shields) should be consistent with EN 166 or equivalent.
Skin protection
Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl alcohol ("PVA"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.
Other protection: Wear clean, body-covering clothing.
Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.
Use the following CE approved air-purifying respirator: Organic vapor cartridge, type A (boiling point >65 ºC, meeting standard EN 14387).

Environmental exposure controls
See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	
Physical state	Grease
Color	amber
Odor	oily
Odor Threshold	No data available
pH	Not applicable
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	Not applicable

Flash point	**Seta closed cup** >100 °C
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	Not classified as a flammability hazard
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	1.01
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	Not applicable
Kinematic Viscosity	Not applicable
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other information

Molecular weight	No data available
Particle size	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Not classified as a reactivity hazard.

10.2 Chemical stability: Stable under normal conditions.

10.3 Possibility of hazardous reactions: Can react with strong oxidizing agents.

10.4 Conditions to avoid: None known.

10.5 Incompatible materials: Oxidizing agents

10.6 Hazardous decomposition products
No hazardous decomposition products are known.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

11.1 Information on toxicological effects
Acute toxicity

Acute oral toxicity
Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):
LD50, Rat, > 2,000 mg/kg Estimated.

Acute dermal toxicity
Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, Rat, > 2,000 mg/kg Estimated.

Acute inhalation toxicity
Brief exposure (minutes) is not likely to cause adverse effects.
As product: The LC50 has not been determined.

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation
May cause slight eye irritation.

Sensitization
For skin sensitization:
Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Based on available data for the component(s), repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity
No relevant data found.

Teratogenicity
No relevant data found.

Reproductive toxicity
No relevant data found.

Mutagenicity
Contains a component(s) which were negative in in vitro genetic toxicity studies.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

COMPONENTS INFLUENCING TOXICOLOGY:

Nonanedioic acid, dilithium salt
Acute inhalation toxicity
The LC50 has not been determined.

O,O-Diisopropyl-S-2-ethoxycarbonyl ethyl dithiophosphate
Acute inhalation toxicity
The LC50 has not been determined.

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer
Acute inhalation toxicity
The LC50 has not been determined.

PHOSPHOROTHIOIC ACID, 0,0,0-TRIPHENYL ESTER
Acute inhalation toxicity
The LC50 has not been determined.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

12.1 Toxicity

Nonanedioic acid, dilithium salt
Acute toxicity to fish
Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).
LC50, Carp (Cyprinus carpio), Static, 96 Hour, > 100 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), Static, 48 Hour, > 100 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), Static, 72 Hour, Growth rate, > 100 mg/l

O,O-Diisopropyl-S-2-ethoxycarbonyl ethyl dithiophosphate
Acute toxicity to fish
Material is harmful to aquatic organisms (LC50/EC50/IC50 between 10 and 100 mg/L in the most sensitive species).
For similar material(s):

LC50, Danio rerio (zebra fish), static test, 96 Hour, 38 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
For similar material(s):
EC50, Daphnia magna (Water flea), static test, 48 Hour, 53 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
For similar material(s):
ErC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate, > 100 mg/l, OECD Test Guideline 201

Toxicity to bacteria
IC50, 3 Hour, >= 100 mg/l, OECD Test Guideline 209

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer

Acute toxicity to fish
Material is harmful to aquatic organisms (LC50/EC50/IC50 between 10 and 100 mg/L in the most sensitive species).
LC50, Pimephales promelas (fathead minnow), 96 Hour, 64 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 24 Hour, > 1,000 mg/l

Acute toxicity to algae/aquatic plants
EL50, Desmodesmus subspicatus (green algae), 72 Hour, > 100 mg/l, Directive 67/548/EEC, Annex V, C.3.

Toxicity to bacteria
EC50, Bacteria, 3 Hour, > 10,000 mg/l

PHOSPHOROTHIOIC ACID, 0,0,0-TRIPHENYL ESTER

Acute toxicity to fish
Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).
NOEC, Danio rerio (zebra fish), static test, 96 Hour, > 100 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), static test, 48 Hour, > 100 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants
ErC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate, > 100 mg/l, OECD Test Guideline 201

Toxicity to bacteria
IC50, Bacteria, static test, 3 Hour, > 100 mg/l, OECD 209 Test

12.2 Persistence and degradability

Nonanedioic acid, dilithium salt

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
Based on information for a similar material: 10-day Window: Pass
Biodegradation: > 70 %
Exposure time: 10 d
Method: OECD Test Guideline 301B
Based on information for a similar material: 10-day Window: Not applicable
Biodegradation: 100 %
Exposure time: 4 d
Method: OECD Test Guideline 302B

O,O-Diisopropyl-S-2-ethoxycarbonyl ethyl dithiophosphate

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
For similar material(s): 10-day Window: Fail
Biodegradation: 33 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Stability in Water (1/2-life)
Based on data from similar materials, DT50, > 365 d, pH 7

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.
10-day Window: Not applicable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301C or Equivalent

PHOSPHOROTHIOIC ACID, 0,0,0-TRIPHENYL ESTER

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.
10-day Window: Fail
Biodegradation: < 60 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
Material is not readily biodegradable according to OECD/EEC guidelines. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
10-day Window: Fail
Biodegradation: 17.9 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
10-day Window: Not applicable
Biodegradation: 98.2 %
Exposure time: 28 d
Method: OECD Test Guideline 302B

12.3 Bioaccumulative potential

Nonanedioic acid, dilithium salt

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -3.53 at 20 °C OECD Test Guideline 107 or Equivalent

O,O-Diisopropyl-S-2-ethoxycarbonyl ethyl dithiophosphate
Bioaccumulation: Based on data from similar materials Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient: n-octanol/water(log Pow): 4 at 23 °C OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
Bioconcentration factor (BCF): 1 - 4 Cyprinus carpio (Carp) OECD Test Guideline 305

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer
Bioaccumulation: Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).
Partition coefficient: n-octanol/water(log Pow): 1.2 - 7.7

PHOSPHOROTHIOIC ACID, 0,0,0-TRIPHENYL ESTER
Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient: n-octanol/water(log Pow): 5.1 Measured
Bioconcentration factor (BCF): 925 Fish Estimated.

12.4 Mobility in soil

Nonanedioic acid, dilithium salt
No relevant data found.

O,O-Diisopropyl-S-2-ethoxycarbonyl ethyl dithiophosphate
Potential for mobility in soil is low (Koc between 500 and 2000).
Partition coefficient (Koc): 1157 Estimated.

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer
No relevant data found.

PHOSPHOROTHIOIC ACID, 0,0,0-TRIPHENYL ESTER
Expected to be relatively immobile in soil (Koc > 5000).
Partition coefficient (Koc): 198000 Estimated.

12.5 Results of PBT and vPvB assessment

Nonanedioic acid, dilithium salt
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

O,O-Diisopropyl-S-2-ethoxycarbonyl ethyl dithiophosphate
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

PHOSPHOROTHIOIC ACID, 0,0,0-TRIPHENYL ESTER
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

12.6 Other adverse effects

Nonanedioic acid, dilithium salt
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

O,O-Diisopropyl-S-2-ethoxycarbonyl ethyl dithiophosphate
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer
No data available

PHOSPHOROTHIOIC ACID, 0,0,0-TRIPHENYL ESTER
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Do not dump into any sewers, on the ground, or into any body of water. This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

SECTION 14: TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

14.1	**UN number**	Not applicable
14.2	**UN proper shipping name**	Not regulated for transport
14.3	**Transport hazard class(es)**	Not applicable
14.4	**Packing group**	Not applicable
14.5	**Environmental hazards**	Not considered environmentally hazardous based on available data.
14.6	**Special precautions for user**	No data available.

Classification for SEA transport (IMO-IMDG):

14.1	**UN number**	Not applicable
14.2	**UN proper shipping name**	Not regulated for transport
14.3	**Transport hazard class(es)**	Not applicable
14.4	**Packing group**	Not applicable
14.5	**Environmental hazards**	Not considered as marine pollutant based on available data.
14.6	**Special precautions for user**	No data available.
14.7	**Transport in bulk according**	Consult IMO regulations before transporting ocean bulk

to Annex I or II of MARPOL 73/78 and the IBC or IGC Code

Classification for AIR transport (IATA/ICAO):

14.1	**UN number**	Not applicable
14.2	**UN proper shipping name**	Not regulated for transport
14.3	**Transport hazard class(es)**	Not applicable
14.4	**Packing group**	Not applicable
14.5	**Environmental hazards**	Not applicable
14.6	**Special precautions for user**	No data available.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACh Regulation (EC) No 1907/2006
This product contains only components that have been either registered, are exempt from registration, are regarded as registered or are not subject to registration according to Regulation (EC) No. 1907/2006 (REACH)., The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer´s/user´s responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Listed in Regulation: Not applicable

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H302	Harmful if swallowed.
H412	Harmful to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008

This product is not classified as dangerous according to EC criteria.

Revision

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

Acute Tox.	Acute toxicity
Aquatic Chronic	Long-term (chronic) aquatic hazard

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

SPECIALTY ELECTRONIC MATERIALS UK LIMITED urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.
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