Safety Data Sheet

Document group:	31-6262-5	**Version number:**	1.00
Revision date:	08/01/2020	**Supersedes date:**	Initial issue.

Transportation version number: 2.00 (10/02/2020)

This Safety Data Sheet has been prepared in accordance with the REACH Regulation (EC) 1907/2006 and its modifications.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
3M(TM) Thermal Conductive Grease-TCG2036

Product Identification Numbers
UU-0000-9540-4

7100005590

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses
Electrical

1.3. Details of the supplier of the safety data sheet
Address: 3M Ireland Limited, The Iveagh Building, The Park, Carrickmines, Dublin 18.
Telephone: +353 1 280 3555
E Mail: tox.uk@mmm.com
Website: www.3M.com

1.4. Emergency telephone number
+44 (0)1344 858 000

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
CLP REGULATION (EC) No 1272/2008

CLASSIFICATION:
Hazardous to the Aquatic Environment (Acute), Category 1 - Aquatic Acute 1; H400
Hazardous to the Aquatic Environment (Chronic), Category 1 - Aquatic Chronic 1; H410

For full text of H phrases, see Section 16.

2.2. Label elements
CLP REGULATION (EC) No 1272/2008

SIGNAL WORD
WARNING.

Symbols:
GHS09 (Environment) |

Pictograms

HAZARD STATEMENTS:

H410	Very toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P273	Avoid release to the environment.

Disposal:

P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

20% of the mixture consists of components of unknown acute oral toxicity.

Contains 10% of components with unknown hazards to the aquatic environment.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

Ingredient	CAS Nbr	EC No.	REACH Registration No.	% by Wt	Classification
Aluminium	7429-90-5	231-072-3		40 - 60	Flam. Sol. 1, H228; Water-react. 2, H261 - Nota T
zinc oxide	1314-13-2	215-222-5		30 - 40	Aquatic Acute 1, H400,M=1; Aquatic Chronic 1, H410,M=1
Polyether	Trade Secret			1 - 10	Substance not classified as hazardous
Decanoic acid, ester with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol octanoate	11138-60-6	234-392-1		1 - 10	Substance not classified as hazardous
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5			0.1 - 5	Substance with a Community level exposure limit in the workplace

Please see section 16 for the full text of any H statements referred to in this section

For information on ingredient occupational exposure limits or PBT or vPvB status, see sections 8 and 12 of this SDS

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Remove person to fresh air. If you feel unwell, get medical attention.

Skin contact
Wash with soap and water. If signs/symptoms develop, get medical attention.

Eye contact
Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If swallowed
Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1 Information on toxicological effects

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During combustion.
Carbon dioxide.	During combustion.
Irritant vapours or gases.	During combustion.

5.3. Advice for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapours, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible.

6.4. Reference to other sections
Refer to Section 8 and Section 13 for more information

SECTION 7: Handling and storage

7.1. Precautions for safe handling
For industrial/occupational use only. Not for consumer sale or use. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.) Keep away from reactive metals (eg. Aluminium, zinc etc.) to avoid the formation of hydrogen gas that could create an explosion hazard.

7.2. Conditions for safe storage including any incompatibilities
Keep container tightly closed to prevent contamination with water or air. If contamination is suspected, do not reseal container. Store away from acids. Store away from strong bases. Store away from oxidising agents.

7.3. Specific end use(s)
See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	CAS Nbr	Agency	Limit type	Additional comments
Silicon dioxide	112945-52-5	UK HSC	TWA(as inhalable dust):6 mg/m3;TWA(as respirable dust):2.4 mg/m3	
Aluminium	7429-90-5	UK HSC	TWA(as inhalable dust):10 mg/m³;TWA(as respirable dust):4 mg/m³	

UK HSC : UK Health and Safety Commission
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

Biological limit values
No biological limit values exist for any of the components listed in Section 3 of this safety data sheet.

Recommended monitoring procedures: Information on recommended monitoring procedures can be obtained from Indust. Inspect./Ministry (IE)

8.2. Exposure controls

8.2.1. Engineering controls
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapours/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection
None required.

Skin/hand protection
No chemical protective gloves are required.

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapours and particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

Applicable Norms/Standards
Use a respirator conforming to EN 140 or EN 136: filter types A & P

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Solid.
Colour	Grey
Specific Physical Form:	Paste
Odor	Odourless
Odour threshold	*Not applicable.*
pH	*Not applicable.*
Boiling point/boiling range	*Not applicable.*
Melting point	*Not applicable.*
Flammability (solid, gas)	Not classified
Explosive properties	Not classified
Oxidising properties	Not classified
Flash point	248 ºC [*Test Method:*Closed Cup]
Autoignition temperature	*Not applicable.*
Flammable Limits(LEL)	*Not applicable.*
Flammable Limits(UEL)	*Not applicable.*
Vapour pressure	*Not applicable.*
Relative density	2.75 [*Ref Std:*WATER=1]
Water solubility	*Not applicable.*
Solubility- non-water	*Not applicable.*
Partition coefficient: n-octanol/water	*Not applicable.*
Evaporation rate	*Not applicable.*
Vapour density	*Not applicable.*
Decomposition temperature	*Not applicable.*
Viscosity	100,000 - 270,000 mPa-s [@ 25 ºC] [*Test Method:*Brookfield]
Density	2.75 kg/cm3

9.2. Other information

EU Volatile Organic Compounds	*No data available.*
Percent volatile	*Not applicable.*

SECTION 10: Stability and reactivity

10.1 Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section

10.2 Chemical stability
Stable.

10.3 Possibility of hazardous reactions
Hazardous polymerisation will not occur.

10.4 Conditions to avoid
Sparks and/or flames.

10.5 Incompatible materials
Accelerators
Aluminium or magnesium powder and high/shear temperature conditions.
Reactive metals
Strong acids.
Strong bases.
Strong oxidising agents.
Water

10.6 Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 11 are based on UN GHS calculation rules and classifications derived from 3M assessments.

11.1 Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation
Respiratory tract irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Skin contact
Contact with the skin during product use is not expected to result in significant irritation.

Eye contact
Contact with the eyes during product use is not expected to result in significant irritation.

Ingestion
Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Aluminium	Dermal		LD50 estimated to be > 5,000 mg/kg
Aluminium	Ingestion		LD50 estimated to be > 5,000 mg/kg
Aluminium	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.888 mg/l
zinc oxide	Dermal		LD50 estimated to be > 5,000 mg/kg
zinc oxide	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.7 mg/l
zinc oxide	Ingestion	Rat	LD50 > 5,000 mg/kg
Synthetic amorphous silica, fumed, crystalline-free	Dermal	Rabbit	LD50 > 5,000 mg/kg
Synthetic amorphous silica, fumed, crystalline-free	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Synthetic amorphous silica, fumed, crystalline-free	Ingestion	Rat	LD50 > 5,110 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Aluminium	Rabbit	No significant irritation
zinc oxide	Human and animal	No significant irritation
Synthetic amorphous silica, fumed, crystalline-free	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Aluminium	Rabbit	No significant irritation
zinc oxide	Rabbit	Mild irritant
Synthetic amorphous silica, fumed, crystalline-free	Rabbit	No significant irritation

Skin Sensitisation

Name	Species	Value
Aluminium	Guinea pig	Not classified
zinc oxide	Guinea pig	Not classified
Synthetic amorphous silica, fumed, crystalline-free	Human and animal	Not classified

Respiratory Sensitisation

Name	Species	Value
Aluminium	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value

Aluminium	In Vitro	Not mutagenic
zinc oxide	In Vitro	Some positive data exist, but the data are not sufficient for classification
zinc oxide	In vivo	Some positive data exist, but the data are not sufficient for classification
Synthetic amorphous silica, fumed, crystalline-free	In Vitro	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
Synthetic amorphous silica, fumed, crystalline-free	Not specified.	Mouse	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
zinc oxide	Ingestion	Not classified for reproduction and/or development	Multiple animal species	NOAEL 125 mg/kg/day	premating & during gestation
Synthetic amorphous silica, fumed, crystalline-free	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Synthetic amorphous silica, fumed, crystalline-free	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Synthetic amorphous silica, fumed, crystalline-free	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure
For the component/components, either no data is currently available or the data is not sufficient for classification.

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Aluminium	Inhalation	nervous system | respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
zinc oxide	Ingestion	nervous system	Not classified	Rat	NOAEL 600 mg/kg/day	10 days
zinc oxide	Ingestion	endocrine system | hematopoietic system | kidney and/or bladder	Not classified	Other	NOAEL 500 mg/kg/day	6 months
Synthetic amorphous silica, fumed, crystalline-free	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure

Aspiration Hazard
For the component/components, either no data is currently available or the data is not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 12 are based on UN GHS calculation rules and classifications derived from 3M assessments.

12.1. Toxicity

No product test data available.

Material	CAS #	Organism	Type	Exposure	Test endpoint	Test result
Aluminium	7429-90-5	Fish other	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminium	7429-90-5	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminium	7429-90-5	Green Algae	Experimental	72 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminium	7429-90-5	Water flea	Experimental	21 days	NOEC	0.076 mg/l
Aluminium	7429-90-5	Green Algae	Experimental	72 hours	No tox obs at lmt of water sol	100 mg/l
zinc oxide	1314-13-2	Crustacea other	Experimental	24 hours	LC50	0.24 mg/l
zinc oxide	1314-13-2	Rainbow trout	Estimated	96 hours	LC50	0.21 mg/l
zinc oxide	1314-13-2	Green Algae	Experimental	72 hours	EC50	0.057 mg/l
zinc oxide	1314-13-2	Algae or other aquatic plants	Estimated	96 hours	Effect Concentration 10%	0.026 mg/l
zinc oxide	1314-13-2	Crustacea other	Estimated	24 days	NOEC	0.007 mg/l
zinc oxide	1314-13-2	Rainbow trout	Estimated	30 days	NOEC	0.049 mg/l
Decanoic acid, ester with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol octanoate	11138-60-6	Green algae	Experimental	72 hours	EC50	>100 mg/l
Decanoic acid, ester with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol octanoate	11138-60-6	Rainbow trout	Experimental	96 hours	LC50	>100 mg/l
Decanoic acid, ester with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol octanoate	11138-60-6	Water flea	Experimental	48 hours	EC50	>100 mg/l
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Water flea	Experimental	24 hours	EC50	>100 mg/l
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Green Algae	Experimental	72 hours	EC50	>100 mg/l
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Zebra Fish	Experimental	96 hours	LC50	>100 mg/l
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Green Algae	Experimental	72 hours	NOEC	60 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Aluminium	7429-90-5	Data not availbl-insufficient			N/A	
zinc oxide	1314-13-2	Data not availbl-insufficient			N/A	
Decanoic acid, ester with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol octanoate	11138-60-6	Experimental Biodegradation	28 days	CO2 evolution	76 % weight	OECD 301B - Modified sturm or CO2
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Data not availbl-insufficient			N/A	

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
Aluminium	7429-90-5	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
zinc oxide	1314-13-2	Experimental BCF-Carp	56 days	Bioaccumulation factor	≤217	OECD 305E - Bioaccumulation flow-through fish test
Decanoic acid, ester with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol octanoate	11138-60-6	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

12.4. Mobility in soil
Please contact manufacturer for more details

12.5. Results of the PBT and vPvB assessment

This material does not contain any substances that are assessed to be a PBT or vPvB

12.6. Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

The coding of a waste stream is based on the application of the product by the consumer. Since this is out of the control of 3M, no waste code(s) for products after use will be provided. Please refer to the European Waste Code (EWC - 2000/532/EC and amendments) to assign the correct waste code to your waste stream. Ensure national and/or regional regulations are complied with and always use a licensed waste contractor.

EU waste code (product as sold)
070608* Other still bottoms and reaction residues

SECTION 14: Transportation information

UU-0000-9540-4

ADR/RID: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE,LIQUID,N.O.S., (ZINC OXIDE), (ALIMINUM), 9, III, (-), ADR Classification Code: M6.
IMDG-CODE: UN3082, NOT RESTRICTED AS PER IMDG CODE 2.10.2.7, MARINE POLLUTANT EXCEPTION, (ZINC OXIDE), (ALIMINUM), III, IMDG-Code segregation code: NONE, EMS: --.
ICAO/IATA: NOT RESTRICTED,AS PER SPECIAL PROVISION A158, (ZINC OXIDE), (ALIMINUM), III, information required for air way bill.

SECTION 15: Regulatory information

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

15.2. Chemical Safety Assessment
A chemical safety assessment has not been carried out for this substance/mixture in accordance with Regulation (EC) No 1907/2006, as amended.

SECTION 16: Other information

List of relevant H statements

H228	Flammable solid.
H261	In contact with water releases flammable gas.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Revision information:
No revision information

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications. In addition, this SDS is being provided to convey health and safety information. If you are the importer of record of this product into the European Union, you are responsible for all regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration.

3M Ireland MSDSs are available at www.3M.com