SAFETY DATA SHEET

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

1.1. Product identifier

Trade name or designation of the mixture	Tputty 506
Registration number	-
Synonyms	None
Issue date	18-December-2013
Version number	01
Revision date	-
Supersedes date	-

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

Identified uses	Industrial use.
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Manufacturer	Laird Technologies
Address	4707 Detroit Ave Cleveland, Ohio 44102 USA
Telephone number	216-939-2300
Telephone hours	24 hours per day, 7 days per week. Collect calls accepted.
Email Address	clv-customerservice@Lairdtech.com
1.4. Emergency telephone number	Within USA and Canada: 1-800-424-9300. Other Countries: +1-703-527-3887.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

Classification	N;R50/53

The full text for all R-phrases is displayed in section 16.

Classification according to Regulation (EC) No 1272/2008 as amended

Environmental hazards

Hazardous to the aquatic environment, long-term aquatic hazard	Category 1	H410 - Very toxic to aquatic life with long lasting effects.

Hazard summary

Physical hazards	Not classified for physical hazards.
Health hazards	Not classified for health hazards.
Environmental hazards	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Specific hazards	In its manufactured and shipped state, this product is considered to present low hazard. Used as intended, this product is not expected to generate potentially hazardous quantities of dust or fumes.
Main symptoms	May cause temporary irritation on skin or eye contact.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Hazard pictograms

Signal word	Warning
Hazard statements	H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention	P273 - Avoid release to the environment.
Response	P391 - Collect spillage.
Storage	Store away from incompatible materials.
Disposal	P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information Not applicable.

2.3. Other hazards Not a PBT or vPvB substance or mixture.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Zinc oxide	>25	1314-13-2 215-222-5	-	030-013-00-7	
Classification:	**DSD:** N;R50/53				
	CLP: Aquatic Acute 1;H400, Aquatic Chronic 1;H410				

DSD: Directive 67/548/EEC.
CLP: Regulation No. 1272/2008.

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. The full text for all R- and H-phrases is displayed in section 16.

SECTION 4: First aid measures

General information First aid personnel must be aware of own risk during rescue.

4.1. Description of first aid measures

Inhalation	Not relevant, due to the form of the product.
Skin contact	Rinse with water. If irritation occurs, get medical assistance.
Eye contact	Flush thoroughly with water. If irritation occurs, get medical assistance.
Ingestion	Rinse mouth thoroughly. Large quantities: Get medical attention if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed May cause temporary irritation on skin or eye contact.

4.3. Indication of any immediate medical attention and special treatment needed Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards This product is not flammable.

5.1. Extinguishing media

Suitable extinguishing media	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media	None.

5.2. Special hazards arising from the substance or mixture During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters	Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special firefighting procedures	Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Used as intended, this product is not expected to generate potentially hazardous quantities of dust or fumes. For personal protection, see Section 8 of the SDS.
For emergency responders	Keep unnecessary personnel away.

6.2. Environmental precautions Do not allow to enter drains, sewers or watercourses.

6.3. Methods and material for containment and cleaning up	Sweep up or gather material and place in appropriate container for disposal. For waste disposal, see Section 13.
6.4. Reference to other sections	For personal protection, see Section 8 of the SDS. For waste disposal, see Section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling	Normal handling and use of this product should not generate dust or fumes. Keep the workplace clean. Observe good industrial hygiene practices.
7.2. Conditions for safe storage, including any incompatibilities	Store away from incompatible materials.
7.3. Specific end use(s)	Industrial use.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	MAK	5 mg/m3	Fume and respirable dust.

Belgium. Exposure Limit Values.

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	STEL	10 mg/m3	Respirable fraction.
		10 mg/m3	Fume.
	TWA	5 mg/m3	Fume.
		2 mg/m3	Respirable fraction.
		10 mg/m3	Dust.

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value
Zinc oxide (CAS 1314-13-2)	STEL	10 mg/m3
	TWA	5 mg/m3

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Components	Type	Value
Zinc oxide (CAS 1314-13-2)	MAC	5 mg/m3
	STEL	10 mg/m3

Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	TWA	5 mg/m3	Fume.

Czech Republic. OELs. Government Decree 361

Components	Type	Value
Zinc oxide (CAS 1314-13-2)	Ceiling	5 mg/m3
	TWA	2 mg/m3

Denmark. Exposure Limit Values

Components	Type	Value
Zinc oxide (CAS 1314-13-2)	TLV	4 mg/m3

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Components	Type	Value
Zinc oxide (CAS 1314-13-2)	TWA	5 mg/m3

Finland. Workplace Exposure Limits

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	STEL	10 mg/m3	Fume.
	TWA	2 mg/m3	Fume.

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	VME	5 mg/m3	Fume.
		10 mg/m3	Dust.

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	TWA	1 mg/m3	Respirable fume.

Greece. OELs (Decree No. 90/1999, as amended)

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	STEL	10 mg/m3	Fume.
	TWA	5 mg/m3	Fume.

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	STEL	20 mg/m3	Respirable.
	TWA	5 mg/m3	Respirable.

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	TWA	4 mg/m3	Fume.

Ireland. Occupational Exposure Limits

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	STEL	10 mg/m3	Respirable fraction and fume.
	TWA	2 mg/m3	Respirable fraction and fume.

Italy. OELs

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	STEL	10 mg/m3	Respirable fraction.
	TWA	2 mg/m3	Respirable fraction.

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Components	Type	Value
Zinc oxide (CAS 1314-13-2)	TWA	0,5 mg/m3

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements (Hygiene Norm HN 23:2007)

Components	Type	Value
Zinc oxide (CAS 1314-13-2)	TWA	5 mg/m3

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value
Zinc oxide (CAS 1314-13-2)	TLV	5 mg/m3

Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	STEL	10 mg/m3	Fume.
	TWA	5 mg/m3	Fume.

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	STEL	10 mg/m3	Respirable fraction.
	TWA	2 mg/m3	Respirable fraction.

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	STEL	10 mg/m3	Fume.

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Components	Type	Value	Form
	TWA	5 mg/m3	Fume.

Slovakia. OELs. Decree of the government of the Slovak Republic concerning protection of health in work with chemical agents

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	TWA	1 mg/m3	Respirable fume.

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	TWA	5 mg/m3	Respirable fume.

Spain. Occupational Exposure Limits

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	STEL	10 mg/m3	Respirable fraction.
	TWA	2 mg/m3	Respirable fraction.

Sweden. Occupational Exposure Limit Values

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	TWA	5 mg/m3	Total dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
Zinc oxide (CAS 1314-13-2)	STEL	3 mg/m3	Fume and respirable dust.
	TWA	3 mg/m3	Fume and respirable dust.

Biological limit values No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no-effect level (DNEL) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls Used as intended, this product is not expected to generate potentially hazardous quantities of dust or fumes.
In an industrial work environment no special precautions or control measures are required.

Individual protection measures, such as personal protective equipment

General information No special protective equipment required.

Eye/face protection Not normally needed.

Skin protection

- Hand protection Not normally needed.

- Other No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Respiratory protection Not normally needed.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures Wash hands after contact.

Environmental exposure controls Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance Bulk.

Physical state Solid.

Form Solid.

Colour Turquoise.

Odour Odourless.

Odour threshold	Not available.
pH	Not applicable.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Negligible.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Vapour pressure	Negligible.
Vapour density	Not applicable.
Relative density	1,71 (25 °C)
Solubility(ies)	Insoluble in water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not applicable.
Decomposition temperature	400 °C (752 °F)
Viscosity	Not available.
Explosive properties	Not applicable.
Oxidizing properties	Not applicable.
9.2. Other information	
Bulk density	1,7 g/cc
VOC (Weight %)	Negligible.

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Stable under normal temperature conditions.
10.3. Possibility of hazardous reactions	Will not occur.
10.4. Conditions to avoid	None known.
10.5. Incompatible materials	Strong oxidising agents. Strong acids.
10.6. Hazardous decomposition products	Carbon oxides. Borane oxides. Silicon oxides. Nitrogen oxides.

SECTION 11: Toxicological information

General information	Under normal conditions of intended use, this material does not pose a risk to health.
Information on likely routes of exposure	
Ingestion	No harmful effects expected in amounts likely to be ingested by accident.
Inhalation	Not likely, due to the form of the product.
Skin contact	No adverse effects due to skin contact.
Eye contact	No adverse effects due to eye contact are expected.
Symptoms	May cause temporary irritation on skin or eye contact.
11.1. Information on toxicological effects	
Acute toxicity	No adverse effects are expected.
Skin corrosion/irritation	Not classified.
Serious eye damage/eye irritation	Not classified.
Respiratory sensitisation	Not classified.
Skin sensitisation	Not classified.
Germ cell mutagenicity	Not classified.

Carcinogenicity	Not classified.
Reproductive toxicity	Not classified.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not relevant, due to the form of the product.
Mixture versus substance information	No data available.
Other information	None known.

SECTION 12: Ecological information

12.1. Toxicity Very toxic to aquatic life with long lasting effects.

Components		Species	Test results
Zinc oxide (CAS 1314-13-2)			
Aquatic			
Crustacea	LC50	Water flea (Daphnia magna)	0,098 mg/l, 48 Hours

12.2. Persistence and degradability	Not readily degradable.
12.3. Bioaccumulative potential	Has the potential to bioaccumulate.
Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	The product is insoluble in water and will sediment in water systems.
12.5. Results of PBT and vPvB assessment	Not a PBT or vPvB substance or mixture.
12.6. Other adverse effects	None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied.
EU waste code	16 03 03 The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

SECTION 14: Transport information

ADR

14.1. UN number	UN3082
14.2. UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Zinc oxide)
14.3. Transport hazard class(es)	9
Subsidiary class(es)	-
14.4. Packing group	III
14.5. Environmental hazards	Yes
Tunnel restriction code	E
Labels required	9
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN3082
14.2. UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Zinc oxide)
14.3. Transport hazard class(es)	9
Subsidiary class(es)	-
14.4. Packing group	III
14.5. Environmental hazards	Yes

Labels required	9
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	UN3082
14.2. UN proper shipping name	Environmentally Hazardous Liquid, N.o.s. (Zinc oxide)
14.3. Transport hazard class(es)	9
Subsidiary class(es)	-
14.4. Packing group	III
14.5. Environmental hazards	Yes
Labels required	9
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number	UN3082
14.2. UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Zinc oxide)
14.3. Transport hazard class(es)	9
Subsidiary class(es)	-
14.4. Packing group	III
14.5. Environmental hazards	Yes
Labels required	9
ERG code	9L
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

14.1. UN number	UN3082
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc oxide)
14.3. Transport hazard class(es)	9
Subsidiary class(es)	-
14.4. Packing group	III
14.5. Environmental hazards	
Marine pollutant	Yes
Labels required	9
EmS	F-A, S-F
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I

Not listed.

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex II

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3 as amended

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(1) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work

Not regulated.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding

Not regulated.

Other EU regulations

Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances

Not regulated.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Not listed.

Directive 94/33/EC on the protection of young people at work

Not listed.

Other regulations	The product does not need to be labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.
National regulations	Follow national regulation for work with chemical agents.
15.2. Chemical safety assessment	No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations	CLP: Regulation No. 1272/2008. DSD: Directive 67/548/EEC.
References	ESIS (European chemical Substances Information System) HSDB® - Hazardous Substances Data Bank Registry of Toxic Effects of Chemical Substances (RTECS)
Information on evaluation method leading to the classification of mixture	The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.
Full text of any statements or R-phrases and H-statements under Sections 2 to 15	R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects.
Training information	Follow training instructions when handling this material.
Disclaimer	This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.