Safety Data Sheet according to Singapore Standard SS 586.

BONDERITE M-AC ZN POWDERED CONDITIONING AGENT known as FIXODINE ZN

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Section 1. Identification of the substance/preparation and of the company/undertaking

Product name: BONDERITE M-AC ZN POWDERED CONDITIONING AGENT known as FIXODINE ZN

Other means of identification: BONDERITE M-AC ZN DR215KG
Product code: IDH593927
Recommended use of the chemical and restrictions on use

Intended use: Coating
Manufacturer/Importer/Distributor Representative Company

Henkel Singapore Pte Ltd
Science Park Drive 1B
Units 09-31 to 09-35
119315 Singapore

Singapore

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E-mail address of person responsible for Safety Data Sheet: ap-ua-psra.sea@henkel.com

Emergency Telephone for Chemical Accidents: FOR EMERGENCIES ONLY (Spill, major leak, Fire, Exposure, or Accident). Call: +65 6424 7016

Section 2. Hazards identification

GHS Classification:

Hazard Class	Hazard Category
Serious eye damage/eye irritation	Category 1

GHS label elements:

Hazard pictogram:



Signal word: Danger

Hazard statement: H318 Causes serious eye damage.

Precaution:

Prevention: P280 Wear eye protection/face protection.

Response: P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Section 3. Composition / information on ingredients

Substance or Mixture:
Mixture

Declaration of hazardous chemical:

Hazard component CAS-No.	Content	GHS Classification
Tetrasodium pyrophosphate 7722-88-5	10- 30 %	Acute toxicity 4; Oral H302 Serious eye damage/eye irritation 1 H318
Sodium hydrogen carbonate 144-55-8	10- 30 %	
Trisodium orthophosphate 7601-54-9	1- 10 %	Skin irritation 2 H315 Serious eye irritation 2 H319 Target Organ Systemic Toxicant - Single exposure 3 H335
Titanium dioxide 13463-67-7	1- 10 %	

Section 4. First aid measures

Inhalation: If inhaled, immediately remove the affected person to fresh air.
If symptoms develop and persist, get medical attention.

Skin contact: Immediately wash skin thoroughly with soap and water.
If symptoms develop and persist, get medical attention.

Eye contact: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Ingestion: Get immediate medical attention.
DO NOT induce vomiting unless directed to do so by medical personnel.

Section 5. Fire fighting measures

Suitable extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical: May liberate large quantities of dense, foul-smelling smoke which may contain unidentified toxic gasses.

Special protection equipment and precautions for firefighters: Wear full protective clothing.
Wear self-contained breathing apparatus.

Hazardous combustion products: Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.
Oxides of nitrogen.

Section 6. Accidental release measures

Personal precautions: Wear protective equipment.

Environmental precautions: Prevent further leakage or spillage if safe to do so.

Wear appropriate protective equipment and clothing during clean-up.
Do not allow product to enter sewer or waterways.

Clean-up methods: Scrape up spilled material and place in a closed container for disposal.
Dispose of according to Federal, State and local governmental regulations.

Section 7. Handling and storage

Handling: Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.
Avoid breathing dust.
For industrial use only.
Do not take internally.
Use only with adequate ventilation.

Storage: Store only in the original container.Keep container tightly sealed.
Store in a cool, dry place.

Section 8. Exposure controls / personal protection

Components with specific control parameters for workplace:

TETRASODIUM PYROPHOSPHATE 7722-88-5	**Value type**	Time Weighted Average (TWA):
	mg/m³	5
	Remarks	SG OEL
TITANIUM DIOXIDE 13463-67-7	**Value type**	Time Weighted Average (TWA):
	mg/m³	10
	Remarks	SG OEL
Titanium dioxide, nanoscale particles, respirable fraction 13463-67-7	**Value type**	Time Weighted Average (TWA):
	mg/m³	0.2
	Remarks	ACGIH
Titanium dioxide, finescale particles, respirable fraction 13463-67-7	**Value type**	Time Weighted Average (TWA):
	mg/m³	2.5
	Remarks	ACGIH

Respiratory protection: Suitable breathing mask.

Hand protection: The use of chemical resistant gloves such as Nitrile is recommended.

Eye protection: Wear protective glasses with side-pieces.
Protective eye equipment should conform to EN166.

Body protection: Use of impervious apron and boots are recommended.
Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.

Engineering controls:	Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product.
General protection and hygiene measures:	The workplace should be equipped with an emergency shower and eye-rinsing facility.
Hygienic measures:	Wash hands before work breaks and after finishing work. Do not eat, drink or smoke while working. Take off contaminated clothing and wash before reuse.

Section 9. Physical and chemical properties

Appearance:	White Solid
Odor:	No data available.
Odor threshold (CA):	No data available.
pH:	8 - 10 (4% solution)
Melting point / freezing point:	Not determined
Specific gravity:	1.11
Boiling point:	No data available.
Flash point:	Not applicable
Evaporation rate:	Not applicable
Flammability (solid, gas):	No data available.
Lower explosive limit:	No data available.
Upper explosive limit:	No data available.
Vapor pressure:	Not applicable
Vapor density:	Not applicable
Density:	No data available.
Solubility:	No data available.
Partition coefficient: n-octanol/water:	Not determined
Auto ignition:	Not applicable
Decomposition temperature:	No data available.
Viscosity:	No data available.
VOC content:	No data available.

Section 10. Stability and reactivity

Reactivity/Incompatible materials:	This product reacts with acids.
Chemical stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	Will not occur.
Conditions to avoid:	Store away from incompatible materials.
Hazardous decomposition products:	Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

Section 11. Toxicological information

Oral toxicity:	Acute toxicity estimate (ATE) : > 2,000 mg/kg Method: Calculation method

Symptoms of Overexposure**:** None known.

Acute oral toxicity:

Tetrasodium pyrophosphate 7722-88-5	Value type	LD50
	Value	1,624 mg/kg
	Species	rat
	Method	OECD Guideline 425 (Acute Oral Toxicity: Up-and-Down Procedure)
Sodium hydrogen carbonate 144-55-8	Value type	LD50
	Value	> 4,000 mg/kg
	Species	rat
	Method	EPA Guideline
Sodium hydrogen carbonate 144-55-8	Value type	Acute toxicity estimate (ATE)
	Value	4,001 mg/kg
	Species	
	Method	Expert judgement
Trisodium orthophosphate 7601-54-9	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 420 (Acute Oral Toxicity)
Titanium dioxide 13463-67-7	Value type	LD50
	Value	> 5,000 mg/kg
	Species	rat
	Method	OECD Guideline 425 (Acute Oral Toxicity: Up-and-Down Procedure)

Acute inhalative toxicity:

Titanium dioxide 13463-67-7	Value type	LC50
	Value	> 6.82 mg/l
	Exposure time	4 h
	Species	rat
	Method	not specified

Acute dermal toxicity:

Tetrasodium pyrophosphate 7722-88-5	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rabbit
	Method	other guideline:
Trisodium orthophosphate 7601-54-9	Value type	LD50
	Value	> 2,000 mg/kg
	Species	rat
	Method	OECD Guideline 402 (Acute Dermal Toxicity)
Titanium dioxide 13463-67-7	Value type	LD50
	Value	> 10,000 mg/kg
	Species	rabbit
	Method	not specified

Skin corrosion/irritation:

Tetrasodium pyrophosphate 7722-88-5	Result	not irritating
	Exposure time	4 h
	Species	rabbit
	Method	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Sodium hydrogen carbonate 144-55-8	Result	slightly irritating
	Exposure time	4 h
	Species	rabbit
	Method	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Titanium dioxide 13463-67-7	Result	not irritating
	Exposure time	4 h
	Species	rabbit
	Method	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Serious eye damage/irritation:

Tetrasodium pyrophosphate 7722-88-5	Result	Category 1 (irreversible effects on the eye)
	Exposure time	4 h
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Sodium hydrogen carbonate 144-55-8	Result	slightly irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Titanium dioxide 13463-67-7	Result	not irritating
	Exposure time	
	Species	rabbit
	Method	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

Respiratory or skin sensitization:

Tetrasodium pyrophosphate 7722-88-5	Result	not sensitising
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Titanium dioxide 13463-67-7	Result	not sensitising
	Test type	Mouse local lymphnode assay (LLNA)
	Species	mouse
	Method	equivalent or similar to OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Titanium dioxide 13463-67-7	Result	not sensitising
	Test type	Buehler test
	Species	guinea pig
	Method	OECD Guideline 406 (Skin Sensitisation)

Germ cell mutagenicity:

Tetrasodium pyrophosphate 7722-88-5	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	equivalent or similar to OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Sodium hydrogen carbonate 144-55-8	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	not specified
	Method	OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Sodium hydrogen carbonate 144-55-8	Result	negative
	Type of study / Route of administration	in vitro mammalian chromosome aberration test
	Metabolic activation / Exposure time	not specified
	Method	OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Titanium dioxide 13463-67-7	Result	negative
	Type of study / Route of administration	bacterial reverse mutation assay (e.g Ames test)
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Titanium dioxide 13463-67-7	Result	negative
	Type of study / Route of administration	in vitro mammalian chromosome aberration test
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Titanium dioxide 13463-67-7	Result	negative
	Type of study / Route of administration	mammalian cell gene mutation assay
	Metabolic activation / Exposure time	with and without
	Method	OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Titanium dioxide 13463-67-7	Result	negative
	Type of study / Route of administration	in vitro mammalian cell micronucleus test
	Metabolic activation / Exposure time	without
	Method	equivalent or similar to OECD Guideline 487 (In vitro Mammalian Cell Micronucleus Test)
Titanium dioxide 13463-67-7	Result	negative
	Type of study / Route of administration	oral: gavage
	Metabolic activation / Exposure time	
	Species	rat
	Method	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)

Repeated dose toxicity:

Tetrasodium pyrophosphate 7722-88-5	Result	NOAEL=500 mg/kg
	Route of application	oral: gavage
	Exposure time / Frequency of treatment	90 daysOnce a day, 5 days a week
	Species	rat
	Method	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
Sodium hydrogen carbonate 144-55-8	Result	NOAEL=6,400 mg/kg
	Route of application	oral: feed
	Exposure time / Frequency of treatment	104 wdaily
	Species	rat
	Method	not specified
Titanium dioxide 13463-67-7	Result	NOAEL=> 1,000 mg/kg
	Route of application	oral: gavage
	Exposure time / Frequency of treatment	92 ddaily
	Species	rat
	Method	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Section 12. Ecological information

General ecological information: Do not empty into drains / surface water / ground water.

Ecotoxicity:

Toxicity:

Tetrasodium pyrophosphate 7722-88-5	Value type	LC50
	Value	> 100 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Oncorhynchus mykiss
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Tetrasodium pyrophosphate 7722-88-5	Value type	EC50
	Value	> 100 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	EPA OTS 797.1300 (Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnids)
Tetrasodium pyrophosphate 7722-88-5	Value type	EC50
	Value	> 100 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Desmodesmus subspicatus
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOEC
	Value	> 100 mg/l
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Desmodesmus subspicatus
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Tetrasodium pyrophosphate 7722-88-5	Value type	EC50
	Value	> 1,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	3 h
	Species	activated sludge of a predominantly domestic sewage
	Method	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
Sodium hydrogen carbonate 144-55-8	Value type	LC50
	Value	8,600 mg/l
	Acute Toxicity Study	Fish
	Exposure time	96 h
	Species	Lepomis macrochirus
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Sodium hydrogen carbonate 144-55-8	Value type	EC50
	Value	2,350 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Sodium hydrogen carbonate 144-55-8	Value type	EC50
	Value	650 mg/l
	Acute Toxicity Study	Algae
	Exposure time	5 d
	Species	not specified
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Sodium hydrogen carbonate 144-55-8	Value type	EC0
	Value	> 1,000 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	30 min
	Species	not specified
	Method	DIN 38412, part 27 (Bacterial oxygen consumption test)
Trisodium orthophosphate 7601-54-9	Value type	LC50
	Value	1,650 mg/l
	Acute Toxicity Study	Fish
	Exposure time	
	Species	Leuciscus idus

	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Trisodium orthophosphate 7601-54-9	Value type	EC50
	Value	190 mg/l
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Trisodium orthophosphate 7601-54-9	Value type	EC0
	Value	1,650 mg/l
	Acute Toxicity Study	Bacteria
	Exposure time	30 min
	Species	
	Method	not specified
Titanium dioxide 13463-67-7	Value type	LC50
	Value	Toxicity > Water solubility
	Acute Toxicity Study	Fish
	Exposure time	48 h
	Species	Leuciscus idus
	Method	OECD Guideline 203 (Fish, Acute Toxicity Test)
Titanium dioxide 13463-67-7	Value type	EC50
	Value	Toxicity > Water solubility
	Acute Toxicity Study	Daphnia
	Exposure time	48 h
	Species	Daphnia magna
	Method	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Titanium dioxide 13463-67-7	Value type	EC50
	Value	Toxicity > Water solubility
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Pseudokirchneriella subcapitata
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
	Value type	NOEC
	Value	Toxicity > Water solubility
	Acute Toxicity Study	Algae
	Exposure time	72 h
	Species	Pseudokirchneriella subcapitata
	Method	OECD Guideline 201 (Alga, Growth Inhibition Test)
Titanium dioxide 13463-67-7	Value type	EC0
	Value	Toxicity > Water solubility
	Acute Toxicity Study	Bacteria
	Exposure time	24 h
	Species	Pseudomonas fluorescens
	Method	DIN 38412, part 8 (Pseudomonas Zellvermehrungshemm-Test)

Bioaccumulative potential / Mobility in soil:

Sodium hydrogen carbonate 144-55-8	LogPow	-4.01
	Temperature	
	Method	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

Section 13. Disposal considerations

Product

Method of disposal: Dispose of in accordance with local and national regulations.

Packaging

Disposal of uncleaned packages: Packaging that cannot be cleaned are to be disposed of in the same manner as the product.

Section 14. Transport information

Road transport ADR:
Not dangerous goods

Railroad transport RID:
Not dangerous goods

Inland water transport ADN:
Not dangerous goods

Marine transport IMDG:
Not dangerous goods

Air transport IATA:
Not dangerous goods

Section 15. Regulatory information

Regulatory Information: Workplace Safety And Health Act (Chapter 354A, Section 40B) Workplace Safety And Health (Approved Codes of Practice) Notification 2020.
Workplace Safety And Health Act (Chapter 354A, Section 65) Workplace Safety And Health (General Provisions) (Amendment No.2) Regulations 2024

Global inventory status:

Regulatory list	Notification
TCSI	yes
TSCA	yes
AIIC	yes
DSL	yes
ENCS (JP)	yes
ISHL (JP)	yes
KECI (KR)	yes
PICCS (PH)	yes
IECSC	yes

Section 16. Other information

Disclaimer: This Safety Data Sheet has been generated based on Workplace Safety And Health Act (Chapter 354A, Section 40B) Workplace Safety And Health (Approved Codes of Practice) Notification 2020 and Workplace Safety And Health Act (Chapter 354A, Section 65) Workplace Safety And Health (General Provisions) (Amendment No.2) Regulations 2024 only. No warranty or representation of any kind is given with respect to the substantive or export laws of any other jurisdiction or country. Please confirm that the information provided herein conforms to the substantive export or other law of any other jurisdiction prior to export. Please contact Henkel Product Safety and Regulatory Affairs for additional assistance.This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.
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