

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

1.1 Product Identifier	TourPlex Zn
1.2. Relevant identified uses of the substance or mixture and uses advised against Relevant uses:	Use as a professional use fertiliser.
1.3. Details of the supplier of the safety data sheet Company:	Tour Best LLC, P.O. Box 127414, Dubai, UAE.
Phone:	+971 (0) 50 344 1381
Email:	golf@tourbest.ae
1.4. Emergency telephone number	+44 (0) 7725 962 366

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

CLASSIFICATION according to Directive EC 1272/2008 Classification, Labelling and Packaging

Acute Tox. 4:	H302: Harmful if swallowed.
Skin Irrit. 2:	H315: Causes skin irritation.
Eye Dam. 1:	H318: Causes serious eye damage.
STOT Rep 2:	H373: May cause damage to organs through prolonged or repeated exposure.
Aquatic Ac. 1:	H400: Very toxic to aquatic life
Aquatic Chr. 1:	H410: Very toxic to aquatic life with long lasting effects

CLASSIFICATION according to Directive 1999/45/EC and statutory instrument No.716 2009 Chemicals (Hazard Information and Packaging)

Xn; R22:	Harmful if swallowed.
Xi; R36/38:	Irritating to eyes and skin.
Xn; R48/20/22:	Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed
N; R50/53:	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Primary Hazard: Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause damage to organs through prolonged or repeated exposure.

2.2. Label elements

Contains: Zinc sulphate E.C. 231-793-3



Signal word: Danger

Hazard Statements:	H302: Harmful if swallowed. H315: Causes skin irritation. H318: Causes serious eye damage. H373: May cause damage to organs through prolonged or repeated exposure. H410: Very toxic to aquatic life with long lasting effects.
Precautionary Statements	P260: Do not breathe mist/vapours/spray. P280: Wear protective gloves/eye protection. P302+P352: IF ON SKIN: Wash with plenty of soap and water. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove Contact lenses, if present and easy to do. Continue rinsing.








P310: Immediately call a POISON Center or doctor/physician.
P391: Collect spillage
P501: Dispose of contents/container in accordance with local/national regulations.

2.3. Other hazards

Mixture not classed as PBT or vPvB.

SECTION 3: Composition/Information on Ingredients

Hazardous components:

Identification	Chemical Name/Classification	Concentration	
CAS: 77-92-9 EC: 201-069-1 REACH: 01-2119457026-42	Citric Acid	<5.0%	
	Directive 67/548/EC		R36 
	Regulation 1272/2008		Eye Irrit. 2, H319 
CAS: 7446-19-7 EC: 231-793-3 INDEX: 030-006-00-9 REACH: 01-2119474684-27	Zinc sulphate monohydrate	<5.0%	
	Directive 67/548/EC		R22, R41, R50/53  
	Regulation 1272/2008		Acute Tox. 4 - H302; Eye Dam. 1 - H318; Aquatic acute 1 - H400; Aquatic chronic 1 -H410   

The full text and symbols for all hazard information if not displayed in section 2 or 3 are displayed in Section 16

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

By inhalation: Remove from source of exposure to fresh air; seek medical attention.
By skin contact: Drench immediately with water. Remove any contaminated clothing and launder before re-use. Seek medical attention if symptoms persist or develop.
By eye contact: Rinse cautiously for several minutes, Remove contact lenses, if present and easy to do, rinse with clean water for 15 minutes. Seek medical attention IMMEDIATELY.
By consumption: Do not induce vomiting. Wash out mouth with water and give water to drink. Obtain medical attention IMMEDIATELY.

4.2. Most important symptoms and effects, both acute and delayed

Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause damage to organs through prolonged or repeated exposure.

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

Information not available

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media

Use Foam, carbon dioxide, dry powder, sand. The mixture is not classified as flammable as such extinguishing media should be chosen as appropriate for surrounding materials.

5.2. Special hazards arising from the substance or mixture

Possible irritant fumes arising from combustion.

5.3. Advice for fire-fighters

Cool down containers/equipment exposed to heat with a water spray. Contain spread of extinguishing fluids (these fluids may be hazardous for the environment). Wear complete protective clothing and self-contained breathing apparatus.

SECTION 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

The following precautions are considered to be good practice when using any chemicals irrespective of their classification unless otherwise specified.

Use personal protective equipment: appropriate coveralls and gloves
eye/face protection
appropriate respirator

Avoid contact with skin and eyes

6.2. Environmental precautions

Do not allow to enter storm drains or water courses. If this product enters a water course or a sewer (including via contaminated soil & vegetation) in large quantities contact local water authority and inform the Environment Agency.

6.3. Methods and material for containment and cleaning up

Sweep avoiding generating dust into labelled containers for recovery or contact specialist waste disposal contractor.

6.4. Reference to other sections

No reference necessary.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes. Wash Hands thoroughly after handling

Do not eat, drink or smoke when using this product. remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool dry atmosphere, in original labelled containers. Refer to manufacturer for maximum safe stacking height. Keep away from heat sources, combustible materials.

7.3. Specific end use(s)

No specific information available.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Exposure limit values have not been determined for this mixture

Citric acid:

PNEC:

Aquatic PNECaqua - freshwater (mg/l):	0.44	
PNECaqua - marine water (mg/l):	0.044	
PNECfreshwater-sediment (mg/kg d.w.)	3.46	(Equivalent to 0.752 mg/kg wwt)
The PNECmarine-sediment (mg/kg d.w.)	34.6	(Equivalent to 7.52 mg/kg wwt)
Terrestrial (PNECsoil mg/kg d.w.)	33.1	
Sewage treatment plant PNEC STP (mg/l)	>1000	
Atmospheric Compartment	Not applicable	

Zinc sulphate:
DNEL:

Industry	Inhalation	Long Term	Systemic Effects	1 mg/m ³
Industry	Dermal	Long Term	Systemic Effects	0.83 mg/Kg/day
Consumer	Oral	Long Term	Systemic Effects	0.83 mg/Kg/day
Professional	Inhalation	Long Term	Systemic Effects	1.3 mg/m ³
Consumer	Dermal	Long Term	Systemic Effects	0.83 mg/Kg/day

The units are expressed in 'mg/µg' of: Zinc.

PNEC:

Freshwater	0.0206 mg/l	Marine water	0.0061 mg/l
Sediment (freshwater)	235.6* mg/Kg	Sediment (Marine water)	113* mg/Kg
Soil	106.8** mg/Kg	STP	0.0052*** mg/l

The units are expressed in 'mg/µg' of: Zinc. These PNECs are added value PNECs- they are to be added to the natural background levels of: Zinc - in the appropriate compartments (e.g. soils, sediments).

(*) A generic bioavailability factor of 0.5 is applied by default, according to the EU risk assessment (ECB 2008).

(**) by default this value was multiplied by '3' to take into account "lab-to-field" differences in toxicity. (STP) The PNEC for STP was derived by applying an assessment factor to the lowest relevant toxicity value (5.2mg Zn/L). (Dutka et al., 1983)

8.2. Exposure controls

Goggles – Eye Protection: goggles/face shield to BS EN166

Gloves – BS EN374 – chemical protection

Respirators – BS approved protection device with P3 filter

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance:	Off-white solid
Odour:	Information not specified
pH:	Information not specified
Melting point/freezing:	Information not specified
Flammability (solid, gas):	Information not specified
Specific gravity:	Information not specified

9.2. Other information

No other relevant information available.

SECTION 10: Stability and Reactivity

10.1. Reactivity

Unknown.

10.2. Chemical stability

Stable under normal conditions of use.

10.3. Possibility of hazardous reactions

Information not available.

10.4. Conditions to avoid
Extremes of temperature.

10.5. Incompatible materials
None known.

10.6. Hazardous decomposition products
Possible Irritant fumes.

SECTION 11: Toxicological Information

11.1. Information on toxicological effects

The mixture has not been assessed for toxicological effects, the mixture classification is given in section 2 based on individual component contents. Individual component hazards are given in section 3

Toxicological information on hazardous ingredients:

Citric acid

Acute toxicity:	Ingestion LD50 (mouse):	5400 mg/kg bw
	Inhalation:	No data
	Skin Contact. LD50 (dermal):	>2000 mg/kg bw
Skin corrosion/irritation:		mild skin irritant
Eye Contact:		Irritating
Respiratory or skin sensitization:		Not a sensitizer
Mutagenicity:		Not a mutagen
Carcinogenicity:		Not a carcinogen
Reproductive toxicity:		Not a reproductive toxin

Zinc sulphate:

Acute toxicity:	Acute Toxicity (Oral LD50)	> 574 mg/kg Rat
	Very soluble zinc sulphate (monohydrate, hexahydrate and heptahydrate) has LD50 oral values ranging from 574 to 2, 949 mg/kg bw, 862 to 4, 429 mg/kg bw and 920 to 4, 725 mg/kg bw, respectively for the three forms of zinc sulphate. Tests conducted to standard protocols Litton (Bionetics, 1974, Courtois et al., 1978.)	
	Acute Toxicity (Dermal LD50)	> 2000 mg/kg Rat
	Test method(s): OECD 402. (Van Huygevoort 1999)	
	Acute Toxicity (Inhalation LC50):	Rat 4 hours
	Effects of inhalation exposure to zinc sulphate were limited to pulmonary effects only.	
Skin Corrosion/Irritation:	Dose Rabbit	
	Primary dermal irritation index (PDI):	0
	Erythema\eschar score:	No erythema (0).
	Oedema score:	No oedema (0).
	Not classified, not irritating. Test method(s): OECD 404. (Van Huygevoort 1999)	
Serious eye damage/irritation:	Irritating. Test method(s): OECD 405. (Van Huygevoort 1999)	
Respiratory or skin sensitisation:	Skin sensitisation	
	Patch Test: Mouse (Van Huygevoort, 1999 i, Ikarashi et al, 1992)	
	Not Sensitising.	
Germ cell mutagenicity:	Genotoxicity - In Vitro	
	Gene Mutation: In vitro genotoxicity studies indicate that zinc compounds do not have genotoxic activity [Zinc CSR(s), 2010]. This conclusion is in line with those achieved by other regulatory reviews of the genotoxicity of zinc compounds (WHO, 2001; EU RAR, 2004, MAK, 2009).	
	Negative.	
	Genotoxicity - In Vivo	

Chromosome aberration:	In vivo genotoxicity studies indicate that zinc compounds do not have genotoxic activity [Zinc CSR(s), 2010]. This conclusion is in line with those achieved by other regulatory reviews of the genotoxicity of zinc compounds (WHO, 2001; EU RAR, 2004, MAK, 2009). Negative.
Carcinogenicity:	No experimental or epidemiological evidence exists to justify classification of zinc compounds for carcinogenic activity (based on cross-reading between Zn compounds; no classification for carcinogenicity required) (Chemical Safety report (CSR) zinc oxide. 2010).
Reproductive Toxicity:	Reproductive Toxicity - Fertility - No experimental or epidemiological evidence exists to justify classification of zinc compounds for reproductive or developmental toxicity (based on cross-reading between Zn compounds; no classification for reproductive toxicity required) (Chemical Safety Report (CSR) for zinc compounds. 2010)
Specific target organ toxicity - single exposure:	STOT - Single exposure - No experimental or epidemiological sufficient evidence for specific target organ toxicity (single exposure) (based on cross-reading from ZnO; no classification for target organ toxicity (single exposure: STOT-SE) required) (Heydon and Kagan, 1990; Gordon et al., 1992; Mueller and Seger, 1985 [Cited in Chemical Safety report (CSR) zinc sulphate. 2010])).
Specific target organ toxicity - repeated exposure:	STOT - Repeated exposure - No experimental or epidemiological sufficient evidence for specific target organ toxicity (repeated exposure) (no classification for specific target organ toxicity (repeated exposure: STOT-RE) required) (Lam et al, 1985, 1988; Conner et al. , 1988 [Cited in Chemical Safety Report (CSR) for zinc(s). 2010])).
Aspiration hazard:	Viscosity: No data available. Health Warnings: INHALATION. Prolonged inhalation of high concentrations may damage respiratory system. SKIN CONTACT. Acts as a defatting agent on skin. May cause cracking of skin, and eczema. Prolonged or repeated exposure may cause severe irritation. EYE CONTACT. May cause severe irritation to eyes. INGESTION. The product causes irritation of mucous membranes and may cause abdominal discomfort if swallowed. Target Organs: Skin, eyes, respiratory system, lungs

11.2. Other Information

None.

SECTION 12: Ecological Information

12.1. Toxicity

Mixture Classified as very toxic to aquatic life with long lasting effects to the environment in accordance with the Dangerous Preparations Directive 1999/45/EC.

Toxicity of ingredients where available:

Zinc sulphate:

The reference values for acute aquatic toxicity, based on the lowest observed EC50 values of the corresponding databases at different pH and expressed as Zn⁺⁺ ion concentration are:

for pH <7: 0.413 mg Zn⁺⁺/l (48 hr - Ceriodaphnia dubia test according to US EPA 821-R-02-012 standard test protocol; reference: Hyne et al 2005)

for pH >7-8.5: 0.136 mg Zn⁺⁺/l (72 hr - Selenastrum capricornutum (=Pseudokirchneriella subcapitata) test according to OECD 201 standard protocol; reference: Van Ginneken, 1994)

After applying the molecular weight correction (transformation/dissolution testing is not relevant since this zinc compound is readily soluble), the specific reference values for acute aquatic toxicity of the different zinc sulphates are:

For zinc monohydrate (a ZnSO₄.H₂O/Zn molecular weight ratio of 2.74):

for pH <7: 1.13 mg Zn/l (based on 48 hr Ceriodaphnia dubia test cfr above)

for pH >7-8.5: 3.73 mg Zn/l (based on 72 hr Selenastrum capricornutum test cfr above)

For zinc hexahydrate (a ZnSO₄.6H₂O/Zn molecular weight ratio of 4.12):
for pH <7: 1.70 mg Zn/l (based on 48 hr Ceriodaphnia dubia test cfr above)
for pH >7-8.5: 0.56 mg Zn/l (based on 72 hr Selenastrum capricornutum test cfr above)
For zinc heptahydrate (a ZnSO₄.7H₂O/Zn molecular weight ratio of 4.4):
for pH <7: 1.82 mg Zn/l (based on 48 hr Ceriodaphnia dubia test cfr above)
for pH >7-8.5: 0.60 mg Zn/l (based on 72 hr Selenastrum capricornutum test cfr above)
M-factor: 1

CHRONIC AQUATIC TOXICITY:

The chronic freshwater aquatic toxicity database on zinc contains high quality chronic NOEC/EC10 values on 23 species (8 taxonomic groups) obtained under a variety of conditions. The chronic marine-water aquatic toxicity database on zinc contains high quality chronic NOEC/EC10 values on 39 species (9 taxonomic groups) obtained under a variety of conditions. These data, outlined in the CSR, were compiled in a species sensitivity distribution, from which the PNECs for freshwater and marine-water were derived (expressed as Zn⁺²ion concentration).

12.2. Persistence and degradability
Readily biodegradable

12.3. Bioaccumulative potential
Information not available

12.4. Mobility in soil
Information not available

12.5. Results of PBT and vPvB assessment
Not classified

12.6. Other adverse effects
Information not available

SECTION 13: Disposal Considerations

13.1. Waste treatment methods
Use only licensed waste disposal companies. Do not re-use empty containers for any purpose, dispose of packaging in accordance with local regulations.

SECTION 14: Transport Information

14.1 UN number: UN3077
14.2 UN proper shipping name: Environmentally hazardous preparation, solid N.O.S. (contains: Zinc sulphate E.C. 231-793-3)
14.3 Transport hazard: 9
14.4 Packing group: III
14.5 Environmental hazards: Product is classified as toxic to aquatic life with long lasting effects.
14.6 Special precautions for user: Not specified
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Applicable for Maritime bulk transport only. Check with carrier.

SECTION 15: Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
This substance is classified and labelled in accordance with regulation 1999/45/EC, 1272/2008, the statutory instrument No.716 2009 Chemicals (Hazard Information and Packaging) regulations and the EC Fertiliser Regulations 2003, Regulation (EC) No 1907/2006 of the

European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments. Regulation (EC).

15.2. Chemical Safety Assessment
CSA not undertaken for this substance.

16. OTHER INFORMATION

The information contained herein relates only to the designated formulation and may not be valid if product is used in combination with other substances. The information is to the best of our knowledge, belief and understanding, true, accurate and reliable at the date of issue. However, the information may neither be exhaustive or complete, and no warranty, guarantee or liability concerning the accuracy or completeness of the information is expressed or implied. It is the user's risk and sole responsibility to verify and satisfy their own criteria and duty of care concerning the validity of the information in relation to their application of the product.

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