

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: R224 BRIGHT ZINC GALVE SPRAY

Article number: R224

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

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier: Tygris Industrial
 Unit 31
 Kyle Road Industrial Estate
 Irvine
 Ayrshire
 KA12 8LE
 Tel +44 (0) 1294 311 066
 Fax +44 (0) 1294 277 115
 Email technical@tygrisindustrial.com

Further information obtainable from: Technical Department

1.4 Emergency telephone number: Tel +44 (0) 1294 311 066

2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS02 flame

Flam. Aerosol 1 H222-H229 Extremely flammable aerosol. Pressurised container: May burst if heated



GHS09 environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.
 STOT SE 3 H336 May cause drowsiness or dizziness.

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



Xi; Irritant
R36: Irritating to eyes.



F+; Extremely flammable
R12: Extremely flammable



N; Dangerous for the environment
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R66-67: Repeated exposure may cause skin dryness or cracking.
Vapours may cause drowsiness and dizziness.

Information concerning particular hazards for human and environment

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version. At long or repeated contact with skin it may cause dermatitis due to the degreasing effect of the solvent. Warning! Pressurized container. Has a narcotizing effect.

Classification system

The classification is according to the latest editions of the EU-lists, and extended by company and literature data

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation

Hazard pictograms



GHS02

GHS07

GHS09

Signal word

Danger

Hazard-determining components of labelling

Acetone

Hazard statements

H222-H229 Extremely flammable aerosol. Pressurised container: May burst if heated.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H411 Toxic to aquatic life with long lasting effects

Precautionary statements

P101 If medical advice is needed, have product container or label at hand.
 P102 Keep out of reach of children.
 P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 P251 Pressurized container: Do not pierce or burn, even after use.
 P211 Do not spray on an open flame or other ignition source.
 P280 Wear protective gloves / eye protection.
 P271 Use only outdoors or in a well-ventilated area.
 P260 Do not breathe mist/vapours/spray.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
 P403 Store in a well-ventilated place.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations

Additional information EUH066 Repeated exposure may cause skin dryness or cracking

2.3 Other hazards

Results of PBT and vPvB assessment PBT: Not applicable.
 vPvB: Not applicable

3. Composition/information on ingredients

3.2 Mixtures

Description: Active substance with propellant

Dangerous components

CAS: 67-64-1 EINECS: 200-662-2 Reg.nr.: 01-2119471330-49	Acetone Xi R36; F R11 R66-67 Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336	25-<50%
CAS: 106-97-8 EINECS: 203-448-7 Reg.nr.: 01-2119474691-32	butane (containing < 0.1% butadiene (203-450-8)) F+ R12 Flam. Gas 1, H220; Press. Gas, H280	10-<25%
CAS: 74-98-6 EINECS: 200-827-9 Reg.nr.: 01-2119486944-21	propane F+ R12 Flam. Gas 1, H220; Press. Gas, H280	10-<25%
CAS: 64742-95-6 EINECS: 265-199-0	Solvent naphtha (petroleum), light arom. Benzene<0.1% Xn R65; Xi R37; N R51/53 R10-66-67 Flam. Liq. 3, H226; Asp. Tox. 1, H304	3-<10%
CAS: 7440-66-6 EINECS: 231-175-3 Reg.nr.: 01-2119467174-37	zinc powder -zinc dust (stabilized) N R50/53 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	1-<2.5%

CAS: 95-63-6 EINECS: 202-436-9	1,2,4-trimethylbenzene Xn R20; Xi R36/37/38; N R51/53 R10 Flam. Liq. 3, H226; Aquatic Chronic 2, H411; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	1-<2.5%
CAS: 71-36-3 EINECS: 200-751-6 Reg.nr.: 01-2119484630-38	butanol Xn R22; Xi R37/38-41 R10-67 Flam. Liq. 3, H226; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Irrit. 2, H315; STOT SE 3, H335-H336	1.0-<2.5%
CAS: 108-67-8 EINECS: 203-604-4	mesitylene Xi R36/37/38; N R51/53 R10 Flam. Liq. 3, H226; Aquatic Chronic 2, H411; STOT SE 3, H335	0.3-<1%
CAS: 98-82-8 EINECS: 202-704-5	isopropylbenzene Xn R65; Xi R37; N R51/53 R10 Flam. Liq. 3, H226; Asp. Tox. 1, H304; Aquatic Chronic 2, H411; STOT SE 3, H335	0.3-<1%
CAS: 7779-90-0 EINECS: 202-704-5	trizinc bis(orthophosphate) Xn R65; Xi R37; N R51/53 R10 Flam. Liq. 3, H226; Asp. Tox. 1, H304; Aquatic Chronic 2, H411; STOT SE 3, H335	0.3-<1%
CAS: 7779-90-0 EINECS: 231-944-3	trizinc bis(orthophosphate) N R50/53 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	0.3-<1%
CAS: 1314-13-2 EINECS: 215-222-5 Reg.nr.: 01-2119463881-32	zinc oxide N R50/53 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	0.1-<0.25%

4. First aid measures

4.1. Description of first aid measures

After inhalation	Supply fresh air; consult doctor in case of complaints
After skin contact	Generally the product does not irritate the skin
After eye contact	Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor
After swallowing	Do not induce vomiting; call for medical help immediately

4.2 Most important symptoms and effects, both acute and delayed No further relevant information available

4.3 Indication of any immediate medical attention and special treatment needed No further relevant information available

5. Firefighting measures

5.1 Extinguishing Media

Suitable extinguishing agents Water haze
Fire-extinguishing powder
Carbon dioxide
Alcohol resistant foam

For safety reasons unsuitable extinguishing agents Water with full jet

5.2 Special hazards arising from the substance or mixture No further relevant information available

5.3 Advice for firefighters Mount respiratory protective device

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures Wear protective equipment. Keep unprotected persons away

6.2 Environmental precautions Do not allow product to reach sewage system or any water course. Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water

6.3 Methods and material for containment and cleaning up Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents

6.4 Reference to other sections See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information

7. Handling and storage

7.1 Precautions for safe handling Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care

Information about fire - and explosion protection Do not spray onto a naked flame or any incandescent material. Keep ignition sources away - Do not smoke. Protect against electrostatic charges. Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C, i.e. electric lights. Do not pierce or burn, even after use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and receptacles Store in a cool location.
Observe official regulations on storing packagings with pressurized containers.

Information about storage in one common storage facility Observe official regulations on storing packagings with pressurized containers

Further information about storage conditions Keep receptacle tightly sealed. Do not seal receptacle gas tight. Store in cool, dry conditions in well sealed receptacles. Protect from heat and direct sunlight

7.3 Specific end use(s) No further relevant information available

8. Exposure controls/personal protection

Additional information about design of technical facilities No further data; see item 7.

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace	
67-64-1 Acetone	
WEL	Short-term value: 3620 mg/m ³ , 1500 ppm Long-term value: 1210 mg/m ³ , 500 ppm
106-97-8 butane (containing < 0.1% butadiene (203-450-8))	
WEL	Short-term value: 1810 mg/m ³ , 750 ppm Long-term value: 1450 mg/m ³ , 600 ppm Carc (if more than 0.1% of buta-1.3-diene)
74-98-6 propane	
OEL	Short-term value: 3600 mg/m ³ , 2000 ppm Long-term value: 1800 mg/m ³ , 1000 ppm
95-63-6 1,2,4-trimethylbenzene	
WEL	Long-term value: 125 mg/m ³ , 25 ppm ILV
71-36-3 butanol	
WEL	Short-term value: 154 mg/m ³ , 50 ppm Sk
108-67-8 mesitylene	
WEL	Long-term value: 125 mg/m ³ , 25 ppm ILV
98-82-8 isopropylbenzene	
WEL	Short-term value: 250 mg/m ³ , 50 ppm Long-term value: 125 mg/m ³ , 25 ppm Sk

DNELs		
67-64-1 Acetone		
Oral	DNEL Long term-systemic	62 mg/kg bw/day (Consumer)
Dermal	DNEL Long term-systemic	62 mg/kg bw/day (Consumer) 186 mg/kg bw/day (Worker)
Inhalative	DNEL Acute-local	2420 mg/m ³ (Worker)
	DNEL Long term-systemic	200 mg/m ³ (Consumer) 1210 mg/m ³ (Worker)
7440-66-6 zinc powder -zinc dust (stabilized)		
Oral	DNEL Long term-systemic	50 mg/kg bw/day (Worker)
Dermal	DNEL Long term-systemic	5000 mg/kg bw/day (Consumer) 5000 mg/kg bw/day (Worker)
Inhalative	DNEL Long term-systemic	2.5 mg/m ³ (Consumer) 5 mg/m ³ (Worker)
71-36-3 butanol		
Oral	DNEL Long term-systemic	3.125 mg/kg bw/day (Worker)
Inhalative	DNEL Long term-local	310 mg/m ³ (Consumer) 55 mg/m ³ (Worker)

PNECs	
67-64-1 Acetone	
PNEC Freshwater sediment	30.4 mg/kg (Undefined)
PNEC Marine water	1.06 mg/l (Undefined)
PNEC Marine water sediment	3.04 (Undefined)
PNEC Soil	29.5 mg/kg (Undefined)
7440-66-6 zinc powder -zinc dust (stabilized)	
PNEC Freshwater	20.6 ug/l (Undefined)
PNEC Freshwater sediment	118 mg/kg (Undefined)
PNEC Marine water	6.1 ug/l (Undefined)
PNEC Marine water sediment	56.5 mg/kg (Undefined)
PNEC Sewage Treatment Plant	52 ug/l (Undefined)
PNEC Soil	56.6 mg/kg (Undefined)

Additional information The lists valid during the making were used as basis

8.2 Exposure controls

General protective and hygienic measures

Keep away from foodstuffs, beverages and feed.
 Immediately remove all soiled and contaminated clothing
 Wash hands before breaks and at the end of work.
 Do not inhale gases / fumes / aerosols.
 Avoid contact with the eyes.
 Avoid contact with the eyes and skin

Respiratory protection

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
 Filter AX/P2

Protection of hands



Protective gloves
 Solvent resistant gloves
 Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

Nitrile rubber, NBR

Penetration time of glove material

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed

Eye protection



Tightly sealed goggles

Body protection

Use protective suit

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form:	Aerosol
Colour:	According to product specification
Odour:	Characteristic
Odour threshold:	Not determined.

pH-value Not determined

Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	-44 °C

Flash point -97 °C

Flammability (solid, gaseous): Not applicable

Ignition temperature 365 °C

Decomposition temperature Not determined

Self-igniting Product is not selfigniting

Danger of explosion Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

Explosion limits:

Lower:	0.7 Vol %
Upper:	13.0 Vol %

Vapour pressure at 20 °C: 8300 hPa

Density at 20 °C:	0.711 g/cm ³
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not applicable

Solubility in / Miscibility with water: Not miscible or difficult to mix

Partition coefficient (n-octanol/water): Not determined

Viscosity:

Dynamic:	Not determined.
Kinematic:	Not determined

Solvent content: 89.6 %
Organic solvents:

Solids content 10.4 %

9.2 Other information No further relevant information available

10. Stability and reactivity

10.1 Reactivity

10.2 Chemical stability

Thermal decomposition / conditions to be avoided No decomposition if used according to specifications

10.3 Possibility of hazardous reactions No dangerous reactions known

10.4 Conditions to avoid No further relevant information available

10.5 Incompatible materials No further relevant information available

10.6 Hazardous decomposition products No dangerous decomposition products known

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD/LC50 values relevant for classification:		
67-64-1 Acetone		
Oral	LD50	5800 mg/kg (rat)
Dermal	LD50	7800 mg/kg (rbt)
Inhalative	LC50/4h	>20 mg/l (rat)
64742-95-6 Solvent naphtha (petroleum), light arom. Benzene<0.1%		
Oral	LD50	>6800 mg/kg (rat)
Dermal	LD50	>3400 mg/kg (rabbit)
Inhalative	LC50/4 h	>10.2 mg/l (rat)
7440-66-6 zinc powder -zinc dust (stabilized)		
Oral	LD50	>2000 mg/kg (rat)
Inhalative	LC50/4h	>5.4 mg/l (rat)
95-63-6 1,2,4-trimethylbenzene		
Oral	LD50	>3500 mg/kg (rat)
Dermal	LD50	3160 mg/kg (rabbit)
Inhalative	LC50	18 mg/L (rat)
71-36-3 butanol		
Oral	LD50	2292 mg/kg (rat)
Dermal	LD50	3430 mg/kg (rbt)
Inhalative	LC50/4 h	>17.76 mg/l (rat)
7779-90-0 trizinc bis(orthophosphate)		
Oral	LD50	5000 mg/kg (rat)

Primary irritant effect on the skin No irritant effect

Primary irritant effect on the eye Irritating effect

Sensitization: No sensitizing effects known

Additional toxicological information The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version: Irritant

12. Ecological information

12.1 Toxicity

Aquatic toxicity	
67-64-1 Acetone	
EC50	8800 mg/l (Daphnia magna) 8300 (96h) mg/l (Fish)
7440-66-6 zinc powder -zinc dust (stabilized)	
EC10/21d	59.2 ug/l (Daphnia magna)
EC10/72h	27.3 ug/l (algae)
EC50	354 ug/l (Daphnia Magna 48h)
EC50 (72h)	0.17 mg/l (Selenastrum capricornatum (72 h))
EC50/48h	1 mg/l (Daphnia magna)
EC50/96h	0.527 mg/l (algae)
LC50	238-269 ug/l (Pimephales promelas (96 h))
LC50/96h	0.41 mg/l (Oncorhynchus mykiss)
NOEC (72h)	9 mg/l (Ceratophyllum demersum) 0.017 mg/l (Pseudokirchneriella subcapitata)
NOEC/21d	178 ug/l (Crustaceen-Palaemon elegans)
NOEC/4w	8.3 ug/l (Cyprinus carpio)
NOEC/72h	72.9 ug/l (Pseudokirchneriella subcapitata)
95-63-6 1,2,4-trimethylbenzene	
EC50	3.6 mg/l (Daphnia Magna 48h)
LC50	7.72 mg/l (Pimephales promelas (96 h))
71-36-3 butanol	
EC50	225 mg/l (Selenastrum capricornatum (72 h))
EC50/48h	1328 mg/l (Daphnia magna)
LC50/96h	1376 mg/l (Pimephales promelas)
NOEC (21 days)	4.1 mg/l (Daphnia magna)
7779-90-0 trizinc bis(orthophosphate)	
EC50/48h	2.34 mg/l (Daphnia magna)
ErC(50) (72h)	0.14 mg/l (Desmodemus subspicatus)
LC50/96h	0.14 mg/l (Oncorhynchus mykiss (96h))

12.2 Persistence and degradability Easily biodegradable

12.3 Bioaccumulative potential No further relevant information available

12.4 Mobility in soil No further relevant information available

Ecotoxicological effects

Remark: Toxic for fish

Additional ecological information

General notes Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water. Do not allow product to reach ground water, water course or sewage system. Danger to drinking water if even small quantities leak into the ground. Also poisonous for fish and plankton in water bodies. Toxic for aquatic organisms

12.5 Results of PBT and vPvB assessment PBT: Not applicable.
vPvB: Not applicable

12.6 Other adverse effects No further relevant information available

13. Disposal considerations

13.1 Waste treatment methods

Recommendation Must not be disposed together with household garbage. Do not allow product to reach sewage system

Uncleaned packaging

Recommendation Disposal must be made according to official regulations

14. Transport information

14.1 UN-Number

ADR, IMDG, IATA UN1950

14.2 UN proper shipping name

ADR UN1950 AEROSOLS, ENVIRONMENTALLY HAZARDOUS

IMDG AEROSOLS

IATA AEROSOLS, flammable

14.3 Transport hazard class(es)

ADR
Class 2 5F Gases.
Label 2.1

IMDG, IATA
Class 2.1
Label 2.1

14.4 Packing group

ADR, IMDG, IATA Void

14.5 Environmental hazards

Marine pollutant No

Special marking (ADR): Symbol (fish and tree)

14.6 Special precautions for user

Danger code (Kemler): -

EMS Number F-D,S-U

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable

Transport/Additional information

ADR
Limited quantities (LQ) 1L
Excepted quantities (EQ) Code: E0
Not permitted as Excepted Quantity

Transport category 2
Tunnel restriction code D

IMDG

Limited quantities (LQ)

1L

Excepted quantities (EQ) Code:

E0

Not permitted as Excepted Quantity

UN "Model Regulation":

UN1950, AEROSOLS, ENVIRONMENTALLY HAZARDOUS, 2.1

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

 The Control of Substances Hazardous to Health Regulations 2002.
 The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002

Technical instructions (air):

Class	Share in %
NK	75-<100

VOC-CH

89.63 %

VOC-EU

637.2 g/l

Danish MAL Code

5-3

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out

16. Other information
Relevant phrases

H220 Extremely flammable gas.
 H225 Highly flammable liquid and vapour.
 H226 Flammable liquid and vapour.
 H280 Contains gas under pressure; may explode if heated.
 H302 Harmful if swallowed.
 H304 May be fatal if swallowed and enters airways.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H335 May cause respiratory irritation.
 H336 May cause drowsiness or dizziness.
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.
 H411 Toxic to aquatic life with long lasting effects.
 R10 Flammable.
 R11 Highly flammable.
 R12 Extremely flammable.
 R20 Harmful by inhalation.
 R22 Harmful if swallowed.
 R36 Irritating to eyes.
 R36/37/38 Irritating to eyes, respiratory system and skin.
 R37 Irritating to respiratory system.
 R37/38 Irritating to respiratory system and skin.
 R41 Risk of serious damage to eyes.
 R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 R65 Harmful: may cause lung damage if swallowed.
 R66 Repeated exposure may cause skin dryness or cracking.
 R67 Vapours may cause drowsiness and dizziness.