SAFETY DATA SHEET

Version 18.2 replaces Version 18.1
Revision date: 22.08.2018
According to (EU) No. 2015/830

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product identifier: **ZYGLO® ZP-14A**

1.2 Relevant identified uses of the mixture and uses advised against:

Relevant identified uses: Water soluble developer concentrate used in fluorescent penetrant inspection.

Uses advised against: This product is not recommended for any use other than the identified uses above.

1.3 Details of the supplier of the safety data sheet

Manufacturer: Magnaflux® (A Division of ITW Ltd)

Address: Faraday Road, South Dorcan Industrial Estate, Swindon, UK

Postcode: SN3 5HE

Telephone/fax number: Telephone: +44 (0)1793 524566
Fax: +44 (0)1793 490459
Web: www.eu.magnaflux.com

Email address of competent person responsible for SDS: support.eu@magnaflux.com

National contact: None appointed.

1.4 Emergency telephone number: DURING OFFICE HOURS, CALL
T: +44 (0)1793 524566 (English only)

Opening hours: Office hours (GMT) Monday - Thursday 8am - 5pm, Friday 8am - 4pm
OUT OF OFFICE HOURS, CALL
T: +44(0)203 394 9866

SECTION 2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

Classification according to Regulation (EC) No 1272/2008 (CLP):

Physical and Chemical Hazard:
None
Health Hazard:
Eye Dam. 1 H318
Environmental Hazard:
Aquatic Chronic 3 H412

Additional information No additional information.

For full text of hazard statements and EU hazard statements see SECTION 16.

2.2 Label Elements:

Labelling according to regulation (EC) No 1272/2008 [CLP]

Hazard Pictograms:

Signal Word:	Danger
Hazard Statement(s):	H318: Causes serious eye damage. H412: Harmful to aquatic organisms with long lasting effects.
Precautionary Statement(s):	P280: Wear protective gloves / protective clothing / eye protection / face protection. P273: Avoid release to the environment. 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 POSION CENTRE or doctor.
Supplementary Precautionary Statement(s):	P501: Dispose of contents / container to hazardous waste or special collection point.
Supplementary Hazard Information (EU)	No Supplemental Information
Hazard Determining Component(s)	Alcohols, C12 – C15, branched and linear, ethoxylated, propoxylated.

2.3 Other hazards:

May form combustible dust concentrations in air.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

3.2 Mixtures

Ingredient Name	CAS No	EC No	REACH Registration Number	% Weight	Classification according to Regulation (EC) No 1272/2008 [CLP]	Additional information
Sodium Benzoate	532-32-1	208-534-8	01-2119460683-35	< 80	Eye Irrit 2: H319	-
Pentaerythritol	115-77-5	204-104-9	-	< 15	Not classified	Has WEL
Sodium Molybdate 2-Hydrate	10102-40-6	231-551-7	01-211948945-21	< 3	Not classified	Has WEL
Alcohols, C12-C15, branched and linear, ethoxylated, propoxylated	120313-48-6	-	-	< 2	Eye Dam. 1: H318 Aquatic Chronic 2: H411	-
Trisodium phosphate	7601-54-9	231-509-8	-	< 2	Skin Irrit. 2: H315 Eye Irrit. 2: H319 STOT SE3: H335	-

Note: Hazard statement(s) in this section apply only to raw materials, not necessarily to finished products.

**See Section 16 for hazard statement(s) text in full.*

SECTION 4 FIRST AID MEASURES

4.1 Description of first aid measures:

General notes: If symptoms persist, seek medical attention. Show this safety data sheet to the doctor in attendance.

Following inhalation: Remove to fresh air. If not breathing give artificial respiration. Seek medical attention if symptoms occur.

Following skin contact: Flush with water, use soap if available. Contaminated clothing should be washed before re-use.

Following eye contact: Flush eyes with large amounts of water for at least 10 minutes. Check for and remove any contact lenses if easy to do. Continue rinsing. Seek medical attention immediately.

Following ingestion: Rinse mouth with water and clear nasal passages. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention.

Self-protection of the first aider: No action shall be taken involving any personal risk or without suitable training. If it is suspected that the mixture is still present, wear appropriate personal protective equipment.

4.2 Most important symptoms, both acute and delayed:

Risk of serious damage to eyes. No delayed effects known.

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

Eye wash bottle must be readily available when product is in use.

SECTION 5 FIREFIGHTING MEASURES

5.1 Extinguishing media:

Suitable extinguishing media: Carbon dioxide, foam, dry chemical, water fog or spray.

Unsuitable extinguishing media: Do not use water jet.

5.2 Special hazards arising from the substance or mixture: Material is non flammable but dust may form explosive mixture with air. Avoid heat, flames and other sources of ignition.

Hazardous combustion products: Smoke and soot. Oxides of carbon and sodium.

5.3 Advice for fire-fighter:

Self contained breathing apparatus and full protective clothing must be worn if necessary.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

Suitable protective equipment (see Section 8) should be worn to prevent any contamination of skin, eyes and personal clothing.

For non-emergency personnel: Remove ignition sources. Avoid generation and inhalation of dust.

For emergency responders: Keep unnecessary people at a safe distance. Remove ignition sources. Avoid generation and inhalation of dust.

6.2 Environmental precautions:

Prevent product from entering drains, sewers and watercourses. Notify the Environment Agency or water authorities if a major spillage occurs. Prevent product from contaminating soil.

6.3 Methods and material for containment and cleaning up:

Avoid creating dust. Take measures to prevent the build-up of electrostatic charge.

For containment:	Contain spillage. Place in a container for disposal according to local/national regulations. Large spills should be placed into containers pending disposal. Dispose of waste according to local/national regulations.
For cleaning up:	Sweep up.
Other information:	No other information.

6.4 Reference to other sections:

For Personal Protective Equipment see Section 8. For disposal information see Section 13.

SECTION 7 HANDLING & STORAGE

7.1 Precautions for safer handling:

Protective Measures:	Wear suitable protective clothing, such as chemical resistant gloves, apron, goggles and mask to protect from dust. Wear a dust mask when handling dry product and provide appropriate exhaust ventilation at places where dust is formed. Avoid contact with skin and eyes.
Measures to prevent fire:	Product can form flammable dust clouds in air. Take measures to prevent the build-up of electrostatic charge.
Advice on general occupational hygiene:	Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities:

Technical measures and storage conditions:	Store in a cool dry area away from heat and sources of ignition. Main ingredient is hygroscopic. Keep containers closed when not in use.
Packaging materials:	Store in original container.
Requirements for storage rooms and vessels:	Recommended storage temperature 10 ºC to 30 ºC. Keep containers out of direct sunlight.
Further information on storage conditions:	Rotate stock and check regularly for damaged items.

7.3 Specific end use(s):

Recommendations:	Use only for Non Destructive Testing (NDT) applications.
Industrial sector specific solutions:	See product data sheet for further information.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

Occupational exposure limit values:

Occupational exposure figures have been set for some of the components of this preparation based on GESTIS International Limit Values or manufacturers' recommendation.

Ingredient name	Country	Limit value - 8 hours		Limit value - short term	
		ppm	mg /m³	ppm	mg /m³
Pentaerythritol (inhalable aerosol)	UK		10		20
	Sweden		5		
Pentaerythritol (respirable aerosol)	UK		4		
Soluble Molybdenum compounds (as Mo)	UK		5		10
	Sweden		5		
Data obtained from GESTIS International Limit Values					

Note: Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.

Derived No Effect Level (DNEL) –Sodium Benzoate

End User	Exposure Route	Exposure Time	Effects	DNEL
Worker	Inhalation	Long term	Systemic	10.4 mg/m³
Worker	Inhalation	Long term	Local	6.3 mg/m³
Worker	Dermal (skin)	Long term	Systemic	34.7 mg/kg/day

Derived No Effect Level (DNEL) – Pentaerythritol

End User	Exposure Route	Exposure Time	Effects	DNEL
Worker	Inhalation	Long term	Systemic	3.5 mg/m³
Worker	Inhalation	Short term	Systemic	No hazard identified
Worker	Dermal	Long term	Systemic	1 mg/kg bw/day

Note: The Derived No Effect Level (DNEL) is an estimated safe level of exposure that is derived from toxicity data in accordance with specific guidance within the European REACH regulation. The DNEL may differ from an Occupational Exposure Limit (OEL) for the same chemical. OELs may be recommended by an individual company, a government regulatory body or an expert organization, such as the Scientific Committee for Occupational Exposure Limits (SCOEL) or the American Conference of Governmental Industrial Hygenists (ACGIH). OELs are considered to be safe exposure levels for a typical worker in an occupational setting for an 8-hour work shift, 40 hour work week, as a time weighted average (TWA) or a 15 minute short-term exposure limit (STEL). While also considered to be protective of health, OELs are derived by a process different from that of REACH.

Predicted No Effect Concentration (PNEC)	
	Pentaerythritol
Water - Fresh Water	1 mg/l
Water - Marine Water	0.1 mg/l
Water - Intermittent release	1 mg/1
Sewage Treatment plant	50 mg/l

8.2 Exposure controls:

Concentrations of product mists and dusts in the working atmosphere must be kept as low as is reasonably practicable. Exposure should be minimised by the use of appropriate containment, engineering control and ventilation measures. Where this is not possible, personal protective equipment should be worn as indicated below where appropriate.

Appropriate engineering controls: Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limits are not

	exceeded. Provide eye wash station.
Personal protection equipment:	
Eye and face protection:	Safety glasses with side-shields conforming to EN166.
Skin protection - hand:	Protective gloves conforming to EN374. Use chemical resistant gloves recommended by glove manufacturer as being suitable for general powders if hand exposure is unavoidable. Consult the glove manufacturer for exact breakthrough time.
Skin protection – other:	Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of dangerous substance at the specific workplace.
Respiratory protection:	For nuisance exposures use type P1 (EU EN 143) particle respirator. For higher level protection use type ABEK-P3 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under CEN standards.
Thermal hazards:	Not applicable.
Environmental exposure controls:	Avoid any release to the environment.

SECTION 9 PHYSICAL & CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance:	White coarse powder.
Odour:	Slight.
Odour threshold:	No data available.
pH:	10.3 (10% solution).
Melting point/freezing point:	436 °C at 1013.25 hPa (sodium benzoate)
Initial boiling point and boiling range:	No data available.
Flash point (PMCC):	No data available.
Evaporation rate (BuAC = 100):	No data available.
Flammability (solid, gas) (Limits in air):	No data available.
Upper/lower flammability or explosive limits:	No data available.
Vapour pressure:	No data available.
Vapour density (Air = 1):	No data available.
Relative density:	0.6 g/cm^3.
Solubility:	Soluble.
Partition coefficient: n-octanol/water:	logKow= -2.27 (sodium benzoate)
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity (ASTM D445):	No data available.
Explosive properties:	No data available.
Oxidising properties:	No oxidising properties (sodium benzoate)

Note: properties relate to the bulk product only unless otherwise stated.

9.2 Other information:

No other information.

SECTION 10 STABILITY & REACTIVITY

10.1	**Reactivity:**	No specific reactivity hazards associated with this product.
10.2	**Chemical stability**	Stable under normal conditions of use and applications.
10.3	**Possibility of hazardous reactions:**	None known.
10.4	**Conditions to avoid:**	Keep away from sources of ignition, hot surfaces, direct sun light and moisture. Avoid creating a dust hazard.
10.5	**Incompatible materials:**	Strong oxidising agents.
10.6	**Hazardous decomposition materials:**	None under normal conditions of use. Smoke and soot on combustion. Oxides of carbon and sodium.

SECTION 11 TOXICOLOGICAL INFORMATION

11.1 **Information on toxicological effects:** based on data for component materials.

Acute toxicity - oral:	Based on the available data the classification criteria are not met.
Acute toxicity – dermal:	Based on the available data the classification criteria are not met.
Acute toxicity – inhalation:	Based on the available data the classification criteria are not met.
Skin corrosion/irritation:	Based on the available data the classification criteria are not met.
Serious eye damage/irritation:	Eye Dam. 1, H318: Causes serious eye damage.
Respiratory sensitisation:	Based on the available data the classification criteria are not met.
Skin sensitisation:	Based on the available data the classification criteria are not met.
Germ cell mutagenicity:	Ingredients in this mixture are not classified mutagenic according to current regulations.
Carcinogencity:	Ingredients in this mixture are not classified as carcinogenic according to current regulations.
Reproductive toxicity:	Based on individual components, this preparation is not expected to show reproductive toxicity.
STOT single exposure:	Based on the available data the classification criteria are not met.
STOT repeated exposure:	Data lacking.
Aspiration hazard:	No aspiration hazard expected.

Information on likely Routes of Exposure and Potential Health Effects:

Inhalation:	Inhalation of the dry product can cause discomfort of the respiratory tract. Repeated or prolonged breathing of particles may cause respiratory disease.
Ingestion:	Ingestion may cause irritation of the mouth, throat and digestive tract.
Eye contact:	Risk of serious damage to eyes.

Skin contact: Exposure to high airborne concentrations may produce physical discomfort and possible damage to the outer surface of the eye. Frequent or prolonged contact with the product may irritate sensitive skin.

Toxicity Test Results: based on data for component materials, where available.

Sodium Benzoate

Acute Toxicity – oral	LD50 (rat)	> 2000 mg/kg
Acute Toxicity – dermal	LD50 (rat)	> 2000 mg/kg
Acute Toxicity – inhalation	LC50 (rat)	> 12.2 mg/l (dust/mist)

Pentaerythritol

Acute Toxicity – oral	LD50 (rat)	25 500 mg/kg
Acute Toxicity – inhalation	LD50 (rat)	NOEL > 11 mg/l

Sodium Molybdate Anhydrous

Acute Toxicity – oral	LD50 (rat)	4233 mg/kg
Acute Toxicity – dermal	LD50 (rat)	> 2000 mg/kg

Alcohols, C12-C15, branched and linear, ethoxylated, propoxylated

Acute Toxicity – oral	LD50 (rat)	2,000 – 5,000 mg/kg
Acute Toxicity – dermal	LD50 (rabbit)	Not determined
Acute Toxicity – inhalation	LC50 (rat)	Not determined

Trisodium phosphate anhydrous

Acute Toxicity – oral	LD50 (rat)	7400 mg/kg

Other Information: No other information

SECTION 12 ECOLOGICAL INFORMATION

Based on data for component materials

12.1 Toxicity:

Sodium Benzoate

Fish		LC50	96 hours	> 100 mg/l
Aquatic Invertebrates	Daphnia magna	EC50	96 hours	> 100 mg/l
Aquatic Plants		EC50	72 hours	> 100 mg/l
Microorganisms	Activated sludge	EC10	30 mins.	

Pentaerythritol

Fish		LC0	48h	> 5000 mg/l
Aquatic Invertebrates	Daphnia	EC50	24h	38 900 mg/l
Aquatic Plants	Algae	EC3	7 days	16 500 mg/l
Microorganisms	Bacteria	EC10	18h	18200 mg/l

Sodium Molybdate

Fish	Onchorhynchus mykiss	LC50	96 h	7600 mg/l
Aquatic Invertebrates	Daphnia magna	EC50	48 h	330 mg/l

Alcohols, C12-C15, branched and linear, ethoxylated, propoxylated

Fish	Leuciscus idus	LC50	96h	1 – 10 mg/l (1)
Aquatic Invertebrates				No data available.
Aquatic Plants	Algae	EC50	72h	Not determined
Microorganisms	Activated Sludge	EC10		> 1000 mg/l (DEV-L2)

Trisodium phosphate anhydrous

Fish	LC50	96 hours	1650 mg/l

12.2 Persistence and degradability: Expected to be biodegradable.

12.3 Bioaccumulative potential: Accumulation in organisms is not expected.

Partition coefficient: n-octanol/water (log Kow): -2.27 (sodium benzoate)

Bioconcentration factor (BCF): No data available.

12.4 Mobility in soil: This product is soluble in water.

12.5 Results of PBT and vPvB assessment: This mixture does not contain any substances that are assessed to be a PBT or vPvB.

12.6 Other adverse effects: No data available.

SECTION 13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:
Dispose of waste and residues in accordance with local authority requirements. Seek the advice of an approved waste disposal contractor for disposal at a licensed facility in accordance with national legislation.

Product/packing disposal: Empty containers may contain residues. Do NOT remove labels.

Waste codes/waste designations according to LoW: Hazardous waste. Waste code not assigned.

NOTE: Waste codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste code(s).

Waste treatment – relevant information: Dispose of waste and residues in accordance with local authority requirements. Seek the advice of an approved waste disposal contractor for disposal at a licensed facility in accordance with national legislation

Sewage disposal – relevant information: Do not empty down the drain.

Other disposal recommendations: Use a licensed waste contractor.

SECTION 14 TRANSPORT INFORMATION

14.1	**UN number:**	ADR/RID:	-
		IMDG:	-
		IATA:	-
14.2	**UN proper shipping name:**	ADR/RID:	Not dangerous goods.
		IMDG:	Not dangerous goods.
		IATA:	Not dangerous goods.
14.3	**Transport hazard class(es):**	ADR/RID:	-
		IMDG:	-
		IATA:	-
14.4	**Packing group:**	ADR/RID:	-
		IMDG:	-
		IATA:	-

14.5 Environmental hazards:

ADR/RID: -
IMDG: -
IATA: -

14.6 Special precautions for user:
Not applicable.

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:
This data sheet complies with the requirements of Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures.
Safety data sheet as required by EU Regulations 1907/2006 and REACH Annex II Amendment (EU) No. 2015/830.

Information according to 2013/10/EU and 2008/47/EC amendment of the aerosol directive 75/324/EEC.
Not applicable - this product is not an aerosol.

National regulations (Germany):

Wassergefahrdungklasse (water hazard class):	WGK 1 - Low hazard to waters.
TechnischeAnleitungLuft (TA-Luft):	Class 5.2.1 Overall Dust, including fine dust.

15.2 Chemical safety assessment:
No chemical safety assessment has been carried out for this mixture by the supplier.

SECTION 16 OTHER INFORMATION

(i) Indication of changes:
Version 18.2 updated in Section 1.3.

Vertical lines on the left hand side indicate an amendment from the previous version.

(ii) Abbreviations and acronyms:

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road (Accord européen relatif au transport international des marchandises Dangereuses par Route).
CAS No.	Chemical Abstracts Service number
CEN	European Committee for Standardisation
CLP	Classification, Labelling Packaging Regulation; Regulation (EC) No 1272/2008
ECHA	European Chemicals Agency
EC50	Half Maximal Effective Concentration
EC number	EINECS and ELINCS number
EINECS	European Inventory of Existing Commercial Substances
ELINCS	European List of notified Chemical Substances
GHS	Globally Harmonized System
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Lethal Concentration to 50% of a test population
LD50	Lethal Dose to 50% of a test population
MPI	Magnetic Particle Inspection
NDT	Non-Destructive Testing
OEL	Occupational Exposure Limit
PBT	Persistent, Bioaccumulative and Toxic Substance
PMCC	Pensky-Martens closed cup method
PPE	Personal Protection Equipment

REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation EC (No) 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail (Reglement International concernant le transport des marchandises Dangereuses par chemin de fer)
SDS	Safety Data Sheet
STOT RE	Specific Target Organ Toxicity, Repeat Exposure
STOT SE	Specific Target Organ Toxicity, Single Exposure
TA-Luft	Technical Instructions on Air Quality Control (Technische Anleitung zur Reinhaltung der Luft)
vPvB	Very Persistent and Very Bioaccumulative
WEL	Workplace Exposure Limit
WGK	German Water Hazard Class (Wassergefährdungsklasse)

(iii) Key literature and sources of data:

- Supplier's safety data sheets for components listed in Section 3.
- European Chemicals Agency, http://echa.europa.eu/
- GESTIS International Limit Values Database, http://limitvalue.ifa.dguv.de/Webform_gw.aspx
- Occupational Exposure Limits EH40/2005.
- Commission regulation (EU) 2015/830.
- Control of Substances Hazardous to Health Regulations 2002.
- Hazardous waste regulations 2005.
- Health & Safety at Work Act 1974.
- Regulation (EC) No. 1907/2006 (REACH).
- Regulation (EC) No. 1272/2008 (CLP).

(iv) Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 (CLP):

Classification according to Regulation (EC) No 1272/2008	Classification procedure
Eye Dam. 1 H318	Calculation
Aquatic Chronic 3 H412	Calculation

(v) Hazard statements (number and full text):

H315: Causes skin irritation.
H318: Causes serious eye damage.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H411: Toxic to aquatic life with long lasting effects.
H412: Harmful to aquatic life with long lasting effects.

Hazard Class Category Code (full text):

Aquatic Chronic 2: Hazardous to the aquatic environment
Aquatic Chronic 3: Hazardous to the aquatic environment
Eye Dam. 1: Serious eye damage/eye irritation
Eye Irrit. 2: Serious eye damage/eye irritation
Skin Irrit. 2: Skin corrosion/irritation
STOT SE 3: Specific target organ toxicity - single exposure

Relevant precautionary statements (number and full text):

P280: Wear protective gloves / protective clothing / eye protection / face protection.
P273: Avoid release to the environment.
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 POSION CENTRE or doctor.
P501: Dispose of contents / container to hazardous waste or special collection point.

(vi) Training advice:

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene. Chemical hazard risk assessment. Provide adequate information, instruction and training to operators.

SAFETY DATA SHEET

DISCLAIMER

The information and recommendations contained herein are based upon data believed to be up-to-date and correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information and recommendations contained herein. We accept no responsibility and disclaim all liability for any harmful effects that may be caused by (incorrect) use, handling, purchase, resale, or exposure to our product. Customers and users of our product must comply with all applicable health and safety laws, regulations, and orders. In particular, they are under an obligation to carry out a risk assessment for the particular work places and to take adequate risk management measures in accordance with the national implementation legislation of EU Directives 89/391/EEC and 98/24/EC amended by Directive 2014/27/EU.

Revision summary:	**Revision Comments**	This SDS is valid from the Revision Date. If you require a SDS for the product manufactured before the revision date please contact us at support.eu@magnaflux.com.
	Revision Date	22.08.2018
	Version	18.2