CLIENT: UNIVERSAL TOOL & PRODUCTION COMPANY Ltd

METHOD STATEMENT
Commissioning and Final connections to IHT Skid

UNITS 15/16 DAEDALUS HANGERS EAST GOSPORT

Development:	Title & Company	Name	Signature	Date
ICAX approved:	Project Director ICAX Ltd	Gary Page		
	Technical Director ICAX Ltd	Carl Lawson		
Main Contractor approved:				
Document status:	Approved (if all signature boxes are signed)			

This document contains important information

Any person carrying out work listed in this document for ICAX Ltd must read and understand aspects of the document that apply to them. If you have any queries or are unsure of any aspect of the document you must not start work. Consult your manager for futher advice.

Before starting work all employees and subcontractors must sign and date the table below to indicate that they have been briefed on and understand the contents of this document

NAME	SIGNATURE	DATE

1.0 Scope

1.1

- Commissioning and final connections to IHT skid.

2.0 Methodology

2.1 Scope of works

2.1.1 External Manifold.

- Prepare and backfill ground to position of external manifold skid.
- Extend 40mm pipework to final position.
- Shutter and concrete pipes and sleeves.
- Erect stainless steel manifold on base and connect 40mm pipes
- Extend 110mm flow and return pipes to main plantroom skid.
- Flush and pressure test.

2.1.2 Plantroom Final Connections (Mechanical)

- Position and fix main borehole circulation pump.
- Install pipework from pump to main borehole flow and return pipes.
- Flush and pressure test.
- Fill system with Glycol. (see Thermox data sheets Annex II)

2.1.3 Plantroom Final Connections (Electrical and Controls)

- Testing of all control wiring carried out by others and making off in ICAX control panel.
- Final electrical connection to main borehole circulation pump.
- Witness and final sign off of installation.

NB. See BC Technical services RAMS Annex I

2.2 Areas of Working.

- **Plant room**
- **External**

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3.0 Scheduling

- We estimate the work to last for 7 to 10 days.

4.0 Labour Force

- All operatives are fully competent with on site working practices as outlined in the induction process.
- All operatives are employed by the company.
- All operatives fully skilled and certificated.

5.0 Requirments From Main Contractor

- Scaffold to be removed from Plantroom.

6.0 Personal Protective Equipment (PPE)

6.1 Mandatory PPE

It is mandatory for all site personnel to have the following when undertaking activities specified in this method statement:

- Hard hat to EN 397
- Hi-Visibility Vest or Jacket to EN 471
- Rigger boots
- Ear defenders
- Gloves
- Overalls
- Safety glasses

It is the responsibility of each individual to check that their PPE is in a satisfactory condition. Anyone refusing to wear PPE will be required to leave the site.

The minimum requirement must be observed when activities are grouped.

7.0 Contacts

Name	Organisation	Contact Details
Carl Lawson	ICAX	07976684269
Gary Page	ICAX	07785787747

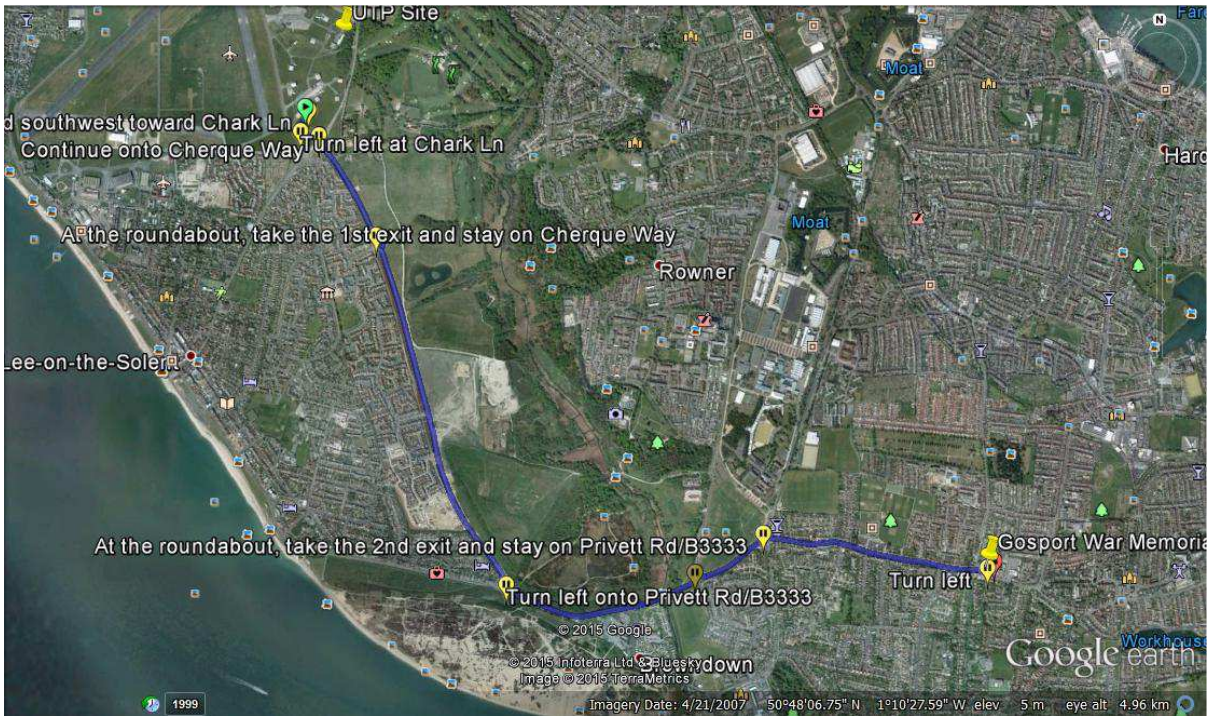
8.0 Emergency arrangements & First Aid

8.1 First Aid

First Aid Kits will be carried on all site support vehicles.

The nearest Hospital Department is:
Gosport War Memorial Hospital
Bury Road

PO12 3PW
02392524611
In an emergency dial: 999



9.0 Hazardous substances

None on this project

10.0 Welfare arrangements

Suitable welfare facilities will be made available by the Main Contractor.

12.0 Environmental Waste

None on this project.

13.0 Risk Assessment Covering items

Project Information	
Company:	ICAX Ltd
Company address:	11 Northburgh Street, London. EC1V 0AN
Project name:	New Manufacturing Facility UTP
Project address:	Units 15/16 Daedalus Hangers East Gosport

Risk Assessment Info.	Risk Assessment No.: UTP 01
Date risk assessment compiled:	11/03/2016
Trade(s) involved:	Mechanical Installation
Activity:	Installation of IHT skid unit
People at risk:	Construction professional, Craftsman / woman, General operative, Self

Date risk assessment due review:	28/03/2016
Name of reviewer:	Gary Page
Contact number for reviewer:	07785787747

***Safety hazard(s)* identified and control measures**

Hazard	Site accidents and incidents requiring first aid
Risk control measure(s)	• A map of the route to the nearest hospital with an Accident and Emergency Department is displayed at a convenient point • A nominated person has responsibility for calling the emergency services, and can give them clear directions, in the event of an accident • All accidents are recorded in the Accident Book • Other first aid equipment, as may be necessary, is provided • Someone is responsible for checking the contents and replenishing first aid boxes • Staff and visitors are informed during site induction of the correct actions to take if they are first on the scene at an accident • Staff are informed of the first aid arrangements during site induction • The location of the first boxes are clearly indicated to all workers • There is a procedure for first aid cover when the trained first aider is not on site • There is at least one trained first aider or emergency first-aider on site during normal working hours
Residual Risk - Severity	**Low**
Residual Risk - Likelihood	**Low**
This risk will be managed by:	Name/position: Carl Lawson Date by which further action is needed: 11/4/2012

Hazard	The storage and disposal of waste materials
Risk control measure(s)	• All contractors are required to promptly clear up their own waste materials and deposit them in the skips or bins provided • All waste materials are disposed in an approved manner of by licensed contractors • Skips are available for disposal of waste materials and are emptied before becoming over-full • The site waste storage area is arranged and located so that the risk of injuries to people who have to access the area is minimised • Waste materials are promptly cleared from working platforms where they would otherwise create an increased risk of falls and/or falling objects • Waste materials are promptly cleared up in situations where they would have the potential to cause accidents, e.g. slips, trips or falls, if left in place • Waste materials which for any reason cannot be stored in skips, are stored tidily and in a safe manner
Residual Risk - Severity	**Low**
Residual Risk - Likelihood	**Low**
This risk will be managed by:	Name/position: Carl Lawson Date by which further action is needed: 08/03/2016

Hazard	The use of hand tools
Risk control measure(s)	• All tools are serviced as is necessary • All hand tools and power tools are suitable for their intended use • Battery powered tools are used wherever possible • All tools, particularly power tools, are stored in a safe condition when not is use • Trailing electrical leads are kept to a minimum and routed so that they are not a tripping hazard. • Users of hand tools carry out a pre-use visual inspection
Residual Risk - Severity	**Low**
Residual Risk - Likelihood	**Low**
This risk will be managed by:	Name/position: Carl Lawson Date by which further action is needed: 28/04/2016

Hazard	The use of scaffolds including prefabricated tower scaffolds
Risk control measure(s)	• All scaffolds are designed and erected, altered and dismantled by competent people • All scaffolds are erected in a manner that they are stable in use • Debris guards capable of containing toppling materials are fitted • Guardrails are securely fixed in place at a maximum spacing of 470 mm with the top guard rail at least 950 mm above the working platform

	• Loading bays are built into the scaffold design • Scaffold inspection reports are prepared by the person inspecting the scaffold as necessary • Scaffolds are designed and erected to cope with their intended purpose e.g. weight of materials • Scaffolds design and erection conform to BS EN 12811-1 • Sections of guard-rail that have to be removed for the landing of materials are replaced as soon as possible afterwards. • Statutory inspections of scaffolds are carried out by a competent person • There is safe access to all working platforms • Toe-boards are installed to all working lifts • Tube and fitting or system scaffolds are fitted with base plates or sole boards as necessary to prevent instability • Working platforms are fully boarded and at least 3 boards wide
Residual Risk - Severity	**Low**
Residual Risk - Likelihood	**Low**
This risk will be managed by:	Name/position: Carl Lawson Date by which further action is needed: 28/04/2016

Hazard	Work activities requiring the use of personal protective equipment (PPE)
Risk control measure(s)	• All necessary PPE is provided free of charge to employees, including the replacement of lost or damaged PPE • As far as practical, work is organised so that PPE is unnecessary • Risk assessments identify when additional PPE must be worn/used • Signs are displayed to indicate when additional PPE must be worn, e.g. areas with high levels of noise • Storage space is available for when PPE is not in use • The users of PPE are involved in the selection of the PPE that they have to use • Training in the correct use of PPE is given where appropriate • Users are informed of the common causes of damage to PPE and what to do if it is lost or damaged • Users are informed of the limitations of the effectiveness of PPE and how to use and care for it properly
Residual Risk - Severity	**Low**
Residual Risk - Likelihood	**Low**
This risk will be managed by:	Name/position: Carl Lawson Date by which further action is needed: 28/04/2016

Health hazard(s) identified and control measures

Hazard	Back and other musculo-skeletal injuries due to manual handling activities
Risk control measure(s)	• Carrying routes are kept clear of slip and trip hazards and other obstructions • Control measures such as splitting large loads down into several smaller loads or 'team-lifting are employed where practical • Guidance is provided on risk reduction measures e.g. 'team lifting', dividing the load kinetic handling etc. • Information, instruction and training provided on safe manual handling techniques • Level and firm floor surfaces are maintained • Staff are encouraged to report work-related back pain at an early stage • Staff are encouraged to seek medical advice if suffering from work-related back pain • The need for manual handling is eliminated or reduced as far as is practical by; the availability of mechanical handing devices/machinery; the positioning of storage areas as near as is practical to where materials will be used; the avoidance of 'double handling'
Residual Risk - Severity	**Low**
Residual Risk - Likelihood	**Low**
This risk will be managed by:	Name/position: Carl Lawson Date by which further action is needed: 28/04/2016

Hazard	Hearing loss due to exposure to excessive noise
Risk control measure(s)	• Appropriate PPE (hearing protection) is provided and worn when and where necessary • Appropriate signs are displayed • Noise levels are reduced by effective maintenance of plant and powered equipment • Site rules require that hearing protection is worn at all times • Users of PPE are trained and instructed in how to use and maintain it effectively
Residual Risk - Severity	**Low**
Residual Risk - Likelihood	**Low**
This risk will be managed by:	Name/position: Carl Lawson Date by which further action is needed: 08/03/2016

Sign-off

I am satisfied that all reasonable measures have been taken to identify the hazards and to control the risks associated with the work covered by this risk assessment.

Person compiling the	**Risk Assessment**
Name:	Gary Page
Position:	Projects Director
Date:	11/03/2016
Signature:	
Contact telephone number:	07785787747

Person authorising the	**Risk Assessment**
Name:	
Position:	
Date :	
Signature :	
Contact telephone number:	

Notes	This is a tool to help you assess risk, therefore it is only as good as the information that you enter. Please remember the accuracy of your health and safety hazard descriptions and your judgement as to the level of risk involved are key to the effectiveness of this tool.
	Do not forget that the law on risk assessments requires you to communicate the significant findings (hazards and risk control measures) to your employees and other employers on site if their employees may be affected by your work activities. How you do this is not specified but the information must be relevant and in a form which is understandable. You may choose to get them to read your risk assessment or simply carry out a briefing. Either way, it could be useful in the future to have a record that you have done so including who received the information.

14.0 Appendices

Appendix D: Degree of risk estimation classifications

Severity Classifications		
1	Minor	Minor accident, resulting in no serious injuries or lost time; little or no damage to property or the environment.
2	Moderate	Potential injury necessitating less than 3 days off work; damage to property or the environment requiring remedial work.
3	Serious	Accident reportable under RIDDOR; serious damage to property or the environment.
4	Major	Accident resulting in serious or permanent injury; major or permanent damage to property or the environment.
5	Catastrophic	Accident resulting in death or severe disablement; destruction of property; irreversible damage to the environment.

Probability Classifications		
1	Improbable	No known instances of such an event occurring.
2	Remote	Past experience suggests that events rarely occur.
3	Possible	Experience shows that events occur on occasions.
4	Probable	Experience shows that events occur frequently.
5	Likely	Very likely to happen unless actively prevented.

Degree of Risk (DR) Matrix						
		Severity				
		5	**4**	**3**	**2**	**1**
Probability	**5**	25	20	15	10	5
	4	20	16	12	8	4
	3	15	12	9	6	3
	2	10	8	6	4	2
	1	5	4	3	2	1

Degree of Risk (DR)		
0-5	Low	Ensure controls are adhered to and activity need not alter.
6-10	Moderate	Tolerable, but efforts should be made to reduce the risk where cost-effective and reasonably practicable.
11-15	Substantial	All practicable measures must be taken to reduce the level of risk; tolerable only where further risk reduction is impracticable or disproportionate to the risk involved.
16-25	Extreme	Unacceptable except in extraordinary circumstances; all control measure must be taken regardless of cost.

Annex 1

Method Statement written by: Adrian Davidge (Director)
Date: March 2016

Company: B C Technical Services Ltd

Location of work to be carried out:- UTP, Portsmouth

1 – Brief Outline of the Work to be Undertaken:

Testing and final connections to controls wiring installed by others.

All required inductions and site passes are to be provided by……..or on site representative.

2 – Tools and Equipment to be utilised

Basic hand tools
Battery Operated drills
Cables of different types and sizes (tri-rated/screened) for field and panel
Crimp box
Sticky pads
Tap tights
Various fixings and terminals
Step Ladder

3 – Setting up Site

As per the site specific inductions we shall work to Icax's conduct of work and regulations.

Site to be kept clear at all times

Works to be carried out between 8am and 5.30pm

4 – Reporting Details

Detail:

James Richman shall be the site based person. Off Site Manager shall be Adrian Davidge (Director)

In the event of an emergency the following contact numbers should be used:
1 Office - 01761 453544
2 Adrian Davidge – 07803 208580
3 James Richman – 07803 208578

5 – Method of work to be utilised:-

Final connections and testing shall be carried out by B C Technical Services Ltd.

Work at height is to be carried out using short steps for short periods of time if absolutely needed.

High level access is to be provided by others with PAF certification.

Work areas to be sectioned off when near the public and/or if there is a risk of danger to others.

6 – Other Information:

The site shall be kept clean at all times

Copies sent to:

1. **Gary Page**
2. **James Richman**
3. **Adrian Davidge**

Staff Briefed:

Name	**Signature**
Gary Page (Icax Ltd)	
James Richman (B C Technical)	
Adrian Davidge (B C Technical)	

BC Technical Services Ltd
Site Specific Risk Assessment and Action Sheet

Client: Icax Ltd **Site: UTP, Portsmouth Date:** **Ref:** HJD/AM/IUTPa

Detail of assessment: Final connections/testing on site

Completed by: A M Davidge **Site client contact :** Gary Page

Classification: H=high, M=medium and L=low (based on Likelihood x Severity)

No.	*Activity element / hazard*	*Significant potential consequences*	*Population at risk*	*Risk classification (H,M,L)*	*Action to be taken to reduce risk*	*Action (by whom/date)*	*Revised classification (H,M,L)*
1.0	Pre commencement						
1.1	Public presence in vicinity	Injury from work activities	Workers	L	None Required		L
1.2	General operations.	Personal injury	Workers	M	Suitable PPE Suitable gloves Eye protection Ear defenders		L
1.3	Disposal of possible asbestos contaminated clothing	None advised on site					
1.4	General operations	Injury due to unfamiliarity	Workers	M	Sign in and receive induction ensuring all operatives are familiar with the works to be carried out		L
1.5	Equipment on site	Injury from contact with sharp edges: door	Workers Public	M	All operators trained		L

No.	*Activity element / hazard*	*Significant potential consequences*	*Population at risk*	*Risk classification (H,M,L)*	*Action to be taken to reduce risk*	*Action (by whom/date)*	*Revised classification (H,M,L)*
2.0	Initial operations						
2.1	Presence of services	Possible electrocution Or injuries from other services	Workers	M	Carry out thorough inspection of the site to identify any services including – Power cables, telephone and gas		L
2.2	Uneven ground, trip hazards, voids	Falling, tripping injuries	Workers	M	Walk through the site before commencing operations identifying potential hazards and informing the work team.		L
No.	*Activity element / hazard*	*Significant potential consequences*	*Population at risk*	*Risk classification (H,M,L)*	*Action to be taken to reduce risk*	*Action (by whom/date)*	*Revised classification (H,M,L)*
3.0	General						
3.1	Use of hand tools	Cuts, muscular strain	Workers	M	Edged tools guarded. Safe stance/ positioning. Safe working distance from colleagues.		L
3.2	Noise and vibration	Personal injury, annoyance	Workers Public	M	Ensure suitable hearing protection is worn. Implement job rotation if identified as a problem. Equipment maintained to manufacturers recommendations Identify any possible compatibility problems with PPE such as dust mask and		L

					face shield.		
3.3	Manual handling	Muscular strain, back injury, crush injury	Workers	M	Operatives to have received manual handling awareness training. Rotate the work / take regular breaks to avoid long periods of repetitive work.		L
No.	*Activity element / hazard*	*Significant potential consequences*	*Population at risk*	*Risk classification (H,M,L)*	*Action to be taken to reduce risk*	*Action (by whom/date)*	*Revised classification (H,M,L)*
4.0	Site						
4.1	Slips, trips, falls from step ladders	Personal injury	Workers	M	Check the working before commencing. Wear suitable boots.		L
4.2	Accidents / incident	Personal injury	Workers Public	M	First aiders to be provided by others. All accidents, incidents and near miss to be recorded.		L
4.3	Cleanliness	Contamination from general dust and dirt	Workers	M	Welfare facilities to be provided to ensure workers can wash prior to smoking, eating and drinking		L
4.4	Waste	Personal injury	Public	M	Ensure waste is removed to a suitably licensed refuse facility.		L

I have read and understand the risk assessment and will conform to it :

Site foreman ……. Team 1……

2…… 3……

Annex II

THERMOX ITF
Safety Data Sheet

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

1.1 Product identifier

Product Name	Thermox ITF

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

Identified uses	Industrial grade heat transfer fluid with antifreeze and inhibitor functions designed for use in geothermal and air source heat recovery systems.
Uses advised against	This product is not recommended for any industrial, professional or consumer use other than the identified uses above.

1.3 Details of the supplier of the Safety Data Sheet

Supplier	Hydra Technologies Ltd. Europa Way, Swansea West Business Park, Fforestfach, Swansea, SA5 4AJ +44 (0) 1792 586800 info@hydratech.co.uk

1.4 Emergency telephone number

Emergency telephone number	01792 586800
Opening Hours	08:30 - 17:00

Out of hours emergency information

First aid advice number	For emergencies that occur outside of office opening hours that pose a threat to human health, the environment or require immediate first aid advice call: +44 (0) 1792 572296
Note	This number is for emergencies only.

2 Section 2: Hazards identification

2.1 Classification of the substance or mixture

Classification - Regulation (EC) No. 1272/2008 (CLP)

Physical and chemical hazards	Not classified as a physical or chemical hazard
Human health	Acute Tox. 4 - H302, STOT RE 2 - H373
Environment	Not classified as an environmental hazard

2.2 Label elements

EC No.

N/A

Labelling - Regulation (EC) No. 1272/2008 (CLP)

Pictograms

Signal Word
Warning

Hazard statements
H302 - Harmful if swallowed
H373 - May cause damage to organs - Kidneys - through prolonged or repeated exposure if swallowed

Precuationary statements
P260 - Do not breathe dust/fumes/gas/mist/vapours/spray
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P301+P312 - IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomitting

2.3 Other hazards

This product does not meet the PBT/vPvB criteria of REACH, annex XIII.

3 Section 3: Composition/information on ingredients

3.2 Mixtures

1 **Component - Monoethylene glycol (ethane-1, 2-diol)**

Concentration	70-90%
EC No.	203-473-3
CAS No.	107-21-1
Reach registration No.	01-2119456816-28

Classification - Regulation (EC) No. 1272/2008 (CLP)
Acute Tox. 4 - H302
STOT RE 2 - H373

2 **Component - Ethanol**

Concentration	1-5%
EC No.	200-578-6
CAS No.	64-17-5
Reach registration No.	01-211945719-43

Classification - Regulation (EC) No. 1272/2008 (CLP)
Flam. Liq. 2 - H225
Eye Irrit. 2 - H319

3 **Component - Sodium nitrite**

Concentration	0.25%
EC No.	231-555-9
CAS No.	7632-00-0
Reach registration No.	01-2119471836-27

Classification - Regulation (EC) No. 1272/2008 (CLP)
Ox. Sol. 3 - H272
Acute Tox. 3 - H301
Eye Irrit. 2 - H319
Aquatic Acute 1 - H400

4 Section 4: First aid procedures

4.1 Description of first aid procedures

General Information	When safe to do so remove the victim from the source of exposure giving consideration as to whether this may cause further discomfort to the victim.
Inhalation	Move the affected person to fresh air at once. Keep warm in a position comfortable for breathing. If breathing becomes difficult, properly trained personnel may assist the victim by supplying oxygen to ease breathing. Get medical attention if any discomfort continues.
Ingestion	DO NOT INDUCE VOMITTING and seek medical attention immediately. Move victim to fresh air and keep warm and at rest in a position comfortable for breathing. Give victim approximately 250 mL of water however, do not give victim anything to drink if not fully conscious. If medical advice is delayed and an adult has consumed several ounces of this chemical, give approximately 100 mL of hard liquor (for children give 2 mL per kilogram of body weight).
Skin Contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.
Eye Contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General Information	The following symptoms are listed in case of exposure to the 100% neat product.
Inhalation	Inhalation of vapours may cause mild irritation of the upper respiratory tract.
Ingestion	Initial symptoms may include an upset stomach, nausea, vomiting and diarrhoea. Symptoms may progress to hyperventilation, metabolic acidosis, cardiovascular dysfunction and acute kidney failure depending on the extent of poisoning.
Skin Contact	Prolonged and repeated contact may cause mild irritation of the skin.
Eye Contact	Direct eye contact may cause reddening of the eyes.

4.3 Indication of immediate medical needs or special treatment

If several ounces (> 50 mL) of this product have been ingested, early administration of ethanol may help to counteract the toxic side effects such as metabolic acidosis, cardiovascular dysfunction and in severe cases kidney failure. Consider haemodialysis or peritoneal dialysis and thiamine 100 mg plus pyridoxine 50 mg intravenously every 6 hours. If ethanol is used a therapeutically effective blood concentration in the range of 100-150 mg/dL may be achieved by a rapid loading dose followed by a continuous intravenous fusion.

Respiratory symptoms such as pulmonary edema, may be delayed. Victims receiving significant exposure should be kept under observation for 24-48 hours for signs of respiratory distress. In the case of severe poisoning, respiratory support with mechanical ventilation and oxygenation of the patient.

Notes for the doctor

No specific recommendations in addition to the suggestions in Sections 4.1 and 4.3.
Treat symptomatically.

5 Section 5: Firefighting measures

5.1 Extinguishing media

Extinguish with alcohol-resistant foam, carbon dioxide (CO_2), dry chemicals, sand and dolomite or water fog.

5.2 Special hazards arising from the substance or mixture

Specific Hazards	When heated and in the case of a fire, harmful vapours/gases (such as carbon monoxide and carbon dioxide) may be formed.
Unusual fire and explosion hazards	Exposure to extreme heat may cause product containers to explode.

5.3 Advice for firefighting

Protective actions during firefighting	Move containers away from fire area if this can be done without risk. Keep people away, isolate the fire and deny unnecessary entry. Use water fog to keep fire-exposed containers cool and disperse vapours. Runoff water should be prevented from entering sewers and watercourses.
Specialist protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and full protective clothing.

THERMOX ITF
Safety Data Sheet

6 Section 6: Procedure for unwanted emissions

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions
Avoid flames, sparks, heat and smoking.
In the case of inadequate ventilation, use respiratory protection.

Protective Equipment
Wear protective clothing as described in Section 8 of this Safety Data Sheet.

Emergency Procedures
Stop leak/release if possible to do so without risk.
Extinguish all ignition sources if safe to do so.
Warn everybody of potential danger and evacuate if necessary.

6.2 Environmental precautions

Do not discharge into drains, water courses or onto the ground.
Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3 Methods and materials for containment and cleanup

Absorb spillage with inert, damp, non-combustible material, then flush the contaminated area with water.
Containers with collected spillage should be appropriately labelled with the correct contents and hazard labels.
Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

6.4 Reference to other sections

Wear protective clothing as described in Section 8 of this Safety Data Sheet. Collect and dispose of spillage as indicated in Section 13.

7 Section 7: Handling and storage

7.1 Precautions for safe handling

Avoid spilling and contact with the skin and the eyes as well as direct inhalation of sprays and mists.
Provide good ventilation.
Do not eat, drink or smoke in work areas and wash hands after handling this product.

7.2 Conditions for safe storage including any compatibilities

Store in tightly-closed, original containers.
Keep separate from food, feedstuffs, fertilisers and other sensitive material.
Do not store near heat sources or expose to high temperatures.
Keep away from heat, sparks and open flame.

7.3 Specific end use(es)

The identified uses for this product are detailed in Section 1.2.

THERMOX ITF
Safety Data Sheet

8 Section 8: Exposure controls / Personal protection

8.1 Control parameters

Name	STD	TWA-8 Hrs	STEL-15 Min
Monoethylene glycol (ethane-1, 2-diol)	WEL	52 mg/m³	104 mg/m³

DNEL
Industry, Inhalation - Long term local effects: 35mg/m³
Industry, Dermal - Long term systemic effects: 106mg/m³
Consumer, Inhalation - Long term local effects: 7mg/m³
Consumer, Dermal - Long term systemic effects: 7mg/m³

PNEC
Fresh water: 10 mg/L
Marine water: 1mg/L
STP: 199.5 mg/L
Sediment fresh water: 20.9 mg/kg
Soil: 1.53 mg/kg

Name	STD	TWA-8 Hrs	STEL-15 Min
Ethanol	WEL	1920 mg/m³	Not available

DNEL
Industry, Inhalation - Short term local effects: 1900 mg/m³
Industry, Dermal - Long term systemic effects: 343 mg/kg/day
Industry, Inhalation - Long term systemic effects: 950 mg/m³
Consumer, Inhalation - Short term local effects: 950 mg/m³
Consumer, Dermal - Long term systemic effects: 206 mg/kg/day
Consumer, Inhalation - Long term systemic effects: 114 mg/m³
Consumer, Oral - Long term systemic effects: 87 mg/kg/day

PNEC
Fresh water: 0.96 mg/L
Marine water: 0.79 mg/L
Intermittent release: 2.75 mg/L
STP: 580 mg/L
Sediment fresh water: 3.6 mg/kg
Sediment marine water: 2.9 mg/kg
Soil: 0.63 mg/kg

THERMOX ITF
Safety Data Sheet

Name	STD	TWA-8 Hrs	STEL-15 Min
Sodium nitrite	WEL	Not available	Not available

DNEL
Industry, Inhalation - Long term systemic effects: 2 mg/m³
Industry, Inhalation - Short term systemic effects: 2 mg/m³

PNEC
Fresh water: 0.0054 mg/L
Marine water: 0.00616 mg/L
Intermittent release: 0.0054 mg/L
Sediment (fresh water): 0.0195 mg/kg
Sediment (marine water): 0.0223 mg/kg
STP: 21 mg/L

8.2 Exposure controls

Technical procedures

Engineering measures	Methods to prevent or control exposure are preferred. Provide adequate ventilation to minimise the risk of inhalation of sprays and mists.
Hygiene measures	Handle in accordance with good industrial hygiene and safety practices. Wash hands after handling this product and at the end of each work shift. Routinely wash work clothing and personal protective equipment to remove possible contaminants.
Respiratory equipment	If ventilation is inadequate, suitable respiratory protection must be worn.
Hand protection	PVC/butyl rubber/neoprene gloves are recommended.
Eye protection	Wear approved chemical goggles or face shield.
Skin Protection	Wear rubber apron or protective clothing in case of contact.
Other Protection	Wear suitable protective clothing/footwear as protection against splashing or contamination.
Thermal Hazards	No specific measures required.
Environmental Exposure Controls	Product not classified as an environmental hazard - no specific environmental exposure controls required.

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9 Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Clear liquid
Colour	Colourless (unless dyed according to customer specification)
Odour	Non-pungent but characteristic aroma
Odour Threshold	Not applicable
pH	7.5 - 10.5 depending on inhibitor formulation
Melting point / Pour point	-40°C
Initial boiling point	> 180°C
Flash point	> 64°C
Evaporation Rate	No test data available
Flammability	Product is not classified as flammable
Flammability / explosion limits	Upper limit: 13% Lower limit: 3%
Vapour pressure	No test data available
Vapour density (air = 1)	No test data available
Relative density of the mixture	1.08 - 1.2
Solubility	Soluble in water
Partition coefficient: n-octanol / water	No test data available
Auto-ignition temperature	> 390°C
Decompostion temperature	No test data available
Viscosity	See product data sheet
Explosive properties	Not applicable - product is not classified as an explosive
Oxidising properties	Not applicable - product is not classified as an oxidising agent

9.2 Other information

Not determined.

10 Section 10: Stability and reactivity

10.1 Reactivity

There are no known reactivity hazards associated with this product.

10.2 Chemical stability

Stable at normal ambient temperatures and when used as recommended.
Product is hygroscopic and will absorb water by contact with the moisture in the air.

10.3 Possibility of hazardous reactions

There are no known hazardous reactions associated with this product.

10.4 Conditions to avoid

Avoid temperatures >180°C for prolonged periods of time, flames and sources of ignition.

10.5 Incompatible materials

Strong acids, strong alkalis and strong oxidising agents.

10.6 Hazardous decomposition products

No known hazardous decomposition products. Potentially hazardous products released due to fire are listed in Section 5.2 of this Safety Data Sheet.

11 Section 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

This product has not been tested as a whole for acute toxicity health effects. For this reason, the acute toxicity values for the main components of this mixture are listed below.

Acute toxicity values for monoethylene glycol:
LD50, oral, rat: 4700 mg/kg bw
LD50, dermal, rabbit: >10,600 mg/kg bw
LD50, dermal, mouse: >3500 mg/kg bw
LC50, inhalation (vapours), rat: >2.5 mg/L

Oral toxicity of monoethylene glycol is expected to be moderate in humans despite animal testing showing a lower degree of toxicity. The estimated lethal dose in humans of NEAT MONOETHYLENE GLYCOL is expected to be approximately 100mL.

Acute toxicity values for ethanol:
LD50, oral, rat: 10,470 mg/kg bw
LD50, dermal rabbit: 17,100 mg/kg bw

Skin corrosion/ irritation	Skin irritation is not expected when this product is used/handled correctly.
Serious eye damage/ irritation	Eye irritation is not expected when this product is used/handled correctly.
Respiratory/ skin sensitisation	Product not classified as a skin/respiratory sensitiser.
Germ cell mutagenicity	Product is not expected to be mutagenic.
Carcinogenicity	Product is not expected to be carcinogenic.
Reproductive toxicity	Product is not expected to damage the reproductive system or harm a developing fetus.
Evaluation of CMR properties	No test data available.
STOT-single exposure	No test data available.
STOT-repeated exposure	No test data available.
Aspiration hazard	No test data available.

General information

See Section 4.2 of this Safety Data Sheet.

Inhalation	Inhalation of vapours may cause mild irritation of the upper respiratory tract.
Ingestion	Initial symptoms may include an upset stomach, nausea, vomiting and diarrhoea. Symptoms may progress to hyperventilation, metabolic acidosis, cardiovascular dysfunction and acute kidney failure depending on the extent of poisoning.
Skin contact	Prolonged and repeated contact may cause mild irritation of the skin.
Eye contact	Direct eye contact may cause reddening of the eyes.

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12 Section 12: Ecological information

Ecotoxicity
The product is not classified as hazardous to the environment.

12.1 Toxicity

LC50, 96 hours, fish:	>100 mg/L - not classified as harmful to fish
EC50, 48 hours, daphnia magna:	>100 mg/L - not classified as harmful to daphnia
EC50, 96 hours, aquatic plants:	>100 mg/L - not classified as harmful to aquatic plants

12.2 Persistence and degradability

This product is readily biodegradable (90% over 10 days).

12.3 Bioaccumulative potential

Will not bio-accumulate.
Partition coefficient - not determined.

12.4 Mobility in soil

Product is mobile in soil as it is water soluble.

12.5 Results of PBT and vPvB assessment

This product does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6 Other adverse effects

Not determined.

13 Section 13: Advice on disposal

General information
Waste to be treated as controlled waste. Disposal to licensed waste disposal site in accordance with Local Waste Disposal Authority.

Disposal methods
Dispose of waste and residues in accordance with local authority and/or local sewage treatment plant requirements.

14 Section 14: Transport information

14.1 UN number

Product not hazardous for transport - no information required.

14.2 UN proper shipping name

Product not hazardous for transport - no information required.

14.3 Transport hazard class(es)

Product not hazardous for transport - no information required.

Transport labels

Product not hazardous for transport - no information required.

14.4 Packing group

Product not hazardous for transport - no information required.

14.5 Environmental hazards

Product not classed as an environmentally hazardous substance or marine pollutant.

14.6 Special precautions for user

Product not hazardous for transport - no information required.

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

Product not hazardous for transport - no information required.

15 Section 15: Regulatory information

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

EU legislation

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) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

Guidance notes

CHIP for everyone HSG228. Approved Classification and Labelling Guide (Sixth edition) L131. Safety Data Sheets for substances and preparations.

15.2 Chemical safety assessment

No chemical safety assessment for this mixture has been carried out.

16 Section 16: Other information

Issued by	Hydra Technologies Ltd.
Revision Date	30/09/2015
Approved by	Stephen Hickson
Revision Comments	Review in line with CLP regulation

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Hazard statements in full

The following hazard statements are the hazard statements 'in full' for the components of this mixture and do not necessarily represent the final classifications of this product.

H302 - Harmful if swallowed
H373 - May cause damage to organs - Kidneys - through prolonged or repeated exposure if swallowed
H225 - Highly flammable liquid and vapour
H319 - Causes serious eye irritation
H272 - May intensify fire; oxidiser
H301 - Toxic if swallowed
H400 - Very toxic to aquatic life

Further classification and composition comments

No further classification or composition comments required.

(i) Indication of changes

Safety Data Sheet updated to comply with the new requirements as set out in Regulation (EC) No. 1272/2008 (CLP).

(ii) Abbreviations and acronyms

bw: bodyweight
CAS No: Chemical Abstracts Service number
CLP: Classification Labelling and Packaging Regulation
DNEL: Derived No-Effect Level
EC: European Commission
EC No: European Chemical number: EINECS, ELINCS or NLP
ECHA: European Chemicals Agency
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
LC50: Lethal Concentration, 50%
LD50: Median Lethal Dose
PBT: Persistent, Bioaccumalative & Toxic
PNEC: Predicted No Effect Concentration
REACH: Registration, Evaluation, Authorisation & restrictions of Chemicals
SDS: Safety Data Sheet
vPvB: Very Persistent and Very Bioaccumalative
WEL: Workplace Exposure Limit

(iii) Training advice

Product should only be handled by trained operators.

(iv) Additional information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give advice about the safe handling of the product named in this Safety Data Sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with products or in the case of processing, the information on this Safety Data Sheet is not necessarily valid for the new made-up material.