

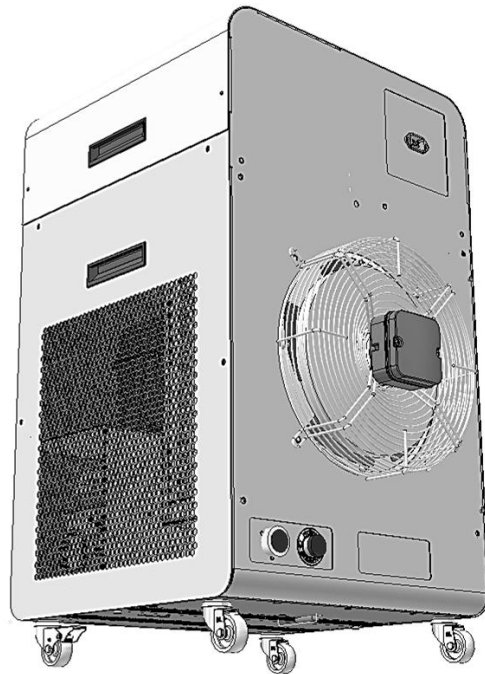


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# Installation, Operation & Service Manual

## G04/K04

Rev 1 – 05/04/23





## Table of Contents

1.0	INTRODUCTION.....	3
1.1	SAFETY NOTICES.....	4
1.2	UNPACKING UNITS WEIGHING OVER 60kg(133lbs) ON CASTORS.....	5
1.3	SITE REQUIREMENTS.....	5
1.4	WARRANTY REGISTRATION.....	7
2.0	PRODUCT SPECIFICATION .....	8
3.0	QUICK START GUIDE .....	9
4.0	INSTALLATION.....	10
4.1	HOSE RECOMMENDATIONS.....	10
4.2	CONNECTING ADAPTERS TO PRODUCT BULKHEAD FITTINGS .....	10
4.3	BACKFILLING.....	11
4.4	VOLTAGE SELECTION.....	11
4.4	FILLING PROCEDURES .....	11
4.5	DRAINING A SYSTEM .....	12
5.0	OPERATION .....	13
5.1	CHANGING SET POINT.....	14
5.2	REGULATING PRESSURE/FLOW.....	14
6.0	BASIC TROUBLESHOOTING.....	16
7.0	END USER MAINTANANCE .....	17
8.0	DECLARATIONS AND APPROVAL.....	18



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## 1.0 INTRODUCTION

By selecting a K04/G04 series chiller you have invested in many years of experience in the design and manufacture of precision temperature control instrumentation.

ATC has built your chiller without compromise to meet the objectives of performance and reliability. Please read this manual carefully to ensure you understand the operation of the machine and how to use the unit safely and efficiently.






If you have any questions regarding installation or repair of this unit, please contact ATC direct.

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### 1.1 SAFETY NOTICES

<b>GENERAL SAFETY INFORMATION</b>	
<p>For your safety, we draw your attention to the following warning and caution marks throughout the manual. Warning symbols can be found on the unit. Ensure you have read through all warnings before starting the unit.</p> <p>The safe operation of ATC products always remains the responsibility of the operator. This equipment is intended to be used as a liquid temperature conditioning device – it requires no external pump, nor any further manipulation of temperature. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. Failure to comply with a ‘warning’ may result in personal injury or death. ATC does not accept any liability for injury caused through use of this equipment.</p>	
	Caution: Failure to comply with a caution will invalidate product warranty and absolve ATC from any liability, howsoever caused, and could result in permanent damage to equipment.
	Caution: Filling/topping up of the tank should only be undertaken with the unit switched off, to prevent back-filling of the fluid.
	Caution: This product contains no user-serviceable parts. Repair and service requires specialized knowledge and tools to be provided by ATC or its local agent. Any unauthorized tampering with the heat exchanger system automatically invalidates warranty.
	Warning: Hot and cold surfaces are present during operation. Take caution and care when touching pump during operation.
	Warning: Water pressures of up to 10 bar during operation.
	Warning; Water and electricity near one another. Always ensure the unit is isolated before service. The product is protected from overcurrent by fuses. Never bypass this component.
	During fault diagnostics and maintenance, it may be necessary to remove panels, which expose the operator to the dangers of pressurized systems, hot or cold pipes and electrical circuits. Only qualified personnel who are aware and equipped to deal with these systems should only carry out such work.
	Any temporary electrical supply to the chiller should be correctly earthed and connected through an earth leakage trip.
	In case of unexpected coolant leakage, safety glasses should always be worn when the chiller is operated with the covers removed.
	Under no circumstances leave the cooler unattended with the side panels removed.
	Never alter settings of pressure switches, overloads, circuit breakers or any safety device without first consulting Applied Thermal Control.



## 1.2 UNPACKING UNITS WEIGHING OVER 60kg(133lbs) ON CASTORS

Please check that both the packaging and the unit are undamaged. If there is any doubt, it is vital that you inform both ATC and the carrier. There are no hidden shipping bolts or other fixings. You should inspect the packaging for signs of transit damage before signing for the unit, and if possible, unpack the unit before signing. Once you have signed for the goods, ATC cannot be held responsible for any transit damage subsequently found.

As the unit weighs >60kg, ATC recommends it should be lifted with slings through the underside, using a forklift or overhead crane. ATC highly recommends that it is not manually lifted, and that safe slinging and lifting practices are adhered to.

Remove the unit from its original packaging and ensure that there is no packaging left around the cooling ducts. There is no internal product packaging that requires the chiller to be opened.

**Please retain all packaging in the unlikely event that the chiller needs to be returned to our local representatives.**

## 1.3 SITE REQUIREMENTS

1	<b>Storage temperature range.</b> Without process fluids, -20°C to +70°C.
2	<b>Storage humidity range.</b> Non-condensing, relative humidity 5% to 95%. Before starting product, allow product to acclimate for 24h in location of use when storing outside <i>operating</i> humidity range.
3	<b>Operating temperature range.</b> With appropriate process fluids, +4°C to +65°C.
4	<b>Operating humidity range.</b> 80% for ambient temperatures up to +31°C (+88°F), decreasing linearly to 50% relative humidity at +40°C (+104°F) ambient temperature.
5	<b>Hard, level surface.</b> A level surface is important for ensuring proper filling and allowing air to escape.
6	<b>Electrical supply</b> 230V ±10% (50Hz) single phase <sup>1</sup> . The Internal circuit breaker is rated at 15 Amps, normal operating current is 9 Amps. For the K04 the Internal circuit breaker is also rated at 15 Amps with normal operating current at 11 Amps.
7	<b>Clearance.</b> Clearance is required to: a) Provide unobstructed access to the electrical box door to use overload handle in case of emergency. b) Fit hoses and electrical supply to the side of the unit allowing recommended bending radii. c) Allow maintenance access points on side panels to be removed. d) Allow process to take place – all models require the coolest, cleanest air that can be provided to achieve the best performance. This model draws air in from the left-hand side (when viewing from the front of the unit) and reject heated air from the right-hand side. e) 0.5m clearance is recommended on air-on and air-off sides.
8	<b>Plumbing.</b> Tubing, piping or hose must be clean and compatible with the fluid to be used. The product is compatible with deionized water, tap water and water-glycol mixtures such as Hexid A4 and A6. Ensure the connected pipework is suitable for handling the nominal flowrate at system pressure ≥6bar.







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<b>9</b>	<b>Indoor use only.</b> Altitude up to 2000m above sea level. Ensure the unit has adequate ventilation.
	Caution: Always use ATC recommended fluids in our products – many sealing compounds and materials are present and unapproved fluids have the potential to corrode your application and damage seals.
	Caution: Do not use inadequately rated wiring. Consult an electrician if you are unsure.
	Caution: The safety of any system incorporating the equipment is the responsibility of the assembler of the system.
	Caution; Do not replace detachable mains cords with inadequately rated cords. Contact ATC for appropriately rated products.



## 1.4 WARRANTY REGISTRATION

Please visit the website warranty registration page to ensure ATC can offer you the best possible support.

<https://www.app-therm.com/warranty-registration/>

- a) **For how long is my ATC product under warranty?**  
ATC provides a comprehensive return to base 2-year parts, 1-year labour warranty from delivery as standard on all new equipment, provided it has been installed and operated in accordance with the manual.
- b) **Where will ATC fulfill the product warranty?**  
ATC's standard warranty terms are Return to Base (RTB) – issues with chillers are often easily solvable over the phone or email, or by reviewing ATC's technical guidance on the web and in the product manual. On occasion, at the discretion of ATC, goods may be serviced on site FOC or a service loan unit may be supplied. Warranty cover excludes the cost of travel by engineers and loan unit rental charges. Obtaining onsite service for a product, even in full warranty, is a chargeable service.
- c) **Who is liable for shipping charges in the event of warranty failure?**  
During the **first year** of the warranty period, freight costs to and from ATC are covered by ATC. During the **second year** of the warranty, freight costs to and from ATC are payable by the customer.
- d) **I'm experiencing problems with my chiller. It's within warranty – what do I do next?**  
Contact ATC to discuss the issue you are having on +44(0)1530 839998 or support@app-therm.com. Be sure to have your model number and serial number on-hand to aid those attempting to solve remotely.
- e) **Telephone support couldn't fix my chiller – what do I do next?**  
An RMA form must be completed. This allows both the end-user and ATC to clarify your details, to set the party responsible for shipping costs, and to set a different return address if desired. Shipping advice is provided, and the end-user must sign a declaration that states the unit is safe to handle. Return the form by email for fastest response.
- f) **What happens if my chiller failed outside warranty or requires non-warranty repair work?**  
A purchase order will be requested to cover an initial inspection – this will only be invoiced if the inspection shows there is no fault. If packaging is required, i.e. a crate, a separate charge will be levied. If the end user prefers ATC to arrange a collection, a shipping charge may be levied.
- g) **Our process must continue running – can we have a loan unit whilst our chiller is in repair?**  
ATC hold several standard air-cooled chillers at the factory for the sole purpose of offering for loan. These are available on a first come, first-serve basis. Models up-to 3kW capacity are available.



## 2.0 PRODUCT SPECIFICATION

Model	G04/K04
Weight	90kg 198lbs
Form factor	Floorstanding
Dimensions	L600 x W513 x H888mm L23.6 x W20.2 x H35"
Noise level	53dB(A)@1m
Toolless access	No
Technology	Vapor Compression
Cooling capacity (Ambient temperature at +30°C with setpoint of +20°C)	3.5kW 11,942BTU/h 0.995TR
Refrigerant	G04: R290 (Propane) K04: R407C
Temperature range	+4°C to +35°C (standard) -20°C to +65°C (extended)
Control method	PID via Hot Gas Bypass
Stability	±0.1°C
Resolution	0.1°C
Sensor type	PT100
System volume	3L
PD pump options	P5, P10, P17
Pressure relief	Internal, PRV, 20-150psi
Process fittings	1/2" BSPPF
Supply (-0spec)	230Vac 50Hz 1~ 9A
Supply (-2spec)	220Vac 60Hz 1~/2~ 9A
1 <sup>st</sup> party approvals	CE, UKCA
Empty fluid tank alarm	Visual, lamp
Low fluid flow alarm	Visual, lamp
Temp range alarm	Visual, lamp
Fridge HP switch	Standard
Motor thermal cutout	Standard
Overcurrent protection	Standard, via MCB
Overcurrent restart	Manual
Emergency off	Not present
Warranty options	2-year parts, 1-year labor Enhanced on request
Rated duty cycle	S1 Continuous






### 3.0 QUICK START GUIDE

QUICK START GUIDE	
1	Remove all the packaging (Section 1.2)
2	Connect chiller's outlet and inlet process to your application
3	Fill up the chiller with appropriate coolant
4	Use the name plate on the back of the chiller to verify the appropriate voltage and supply the power using provided cables.
5	Turn the power switch ON
6	Slowly add more coolant as process lines fill and the coolant is circulated around the process system.
7	Using the controller, set the desired temperature.

## 4.0 INSTALLATION

### 4.1 HOSE RECOMMENDATIONS

Having ensured that your installation meets all site requirements, it is best practice that the fluid lines between your application and the chiller have the following characteristics.	
<b>1</b>	<b>Short in length</b> – this reduces friction-based pressure drop and addition ambient heat load.
<b>2</b>	<b>Large diameter bore</b> – at least 12mm (1/2”).
<b>3</b>	<b>Free from 90° bends</b> – to limit the effects of water hammer. If this cannot be avoided, sharp changes of direction should be minimized so far as possible. Doing this correctly can yield higher pump performance and extend time between maintenance intervals. It will also reduce electrical energy consumption.
<b>4</b>	<b>Clean</b> – If your installation is to existing pipe work, it is good practice to flush the system with either a commercially available central heating cleaner or 5% acetic acid solution. The system should be flushed clean with tap water to remove all traces of cleaner prior to filling the system. Failing this, it is recommended to use a domestic bleach in solution with tap water, diluted to the point where the bleach can longer be smelled by human nose.
<b>5</b>	<b>Opaque, ideally black</b> – to inhibit light passing through the tube and algae building up. Alternatively, solid ABS or copper pipe can be used where application chemistry allows.
<b>6</b>	<b>Insulation, where low temperature process is planned</b> – the process line from chiller to application contains the feed of low temperature fluid. Insulation prevents heat from entering this line and can promote better stability. Uninsulated return lines are helpful where free cooling can be obtained by allowing heat to transfer to air – likewise, insulating the return line is helpful if the fluid temperature is below ambient.
	Caution; Never use transparent tubing. UV light will pass through, prompting growth of organic contamination.


### 4.2 CONNECTING ADAPTERS TO PRODUCT BULKHEAD FITTINGS

<b>1</b>	Standard units are supplied with 1/2” British Standard Pipe Parallel Female (BSPPF) threads (also known as G threads (ISO228)) by default. These fittings are not valved and will ‘drop’ the volume of the system if left open to atmosphere.
<b>2</b>	Ensure the appropriate thread sealants are used in the fitting of adapters to hose. For metallic mating parts, we recommend Loctite 577. For plastic adaptors such as those supplied with the product, we recommend using ~8-12mm wide PTFE tape, wrapped around the male thread before tightening.
<b>3</b>	Ensure that the system is correctly connected. The ‘donut’ labels around the ports are clearly marked with inlet and outlet symbols and function in both English and French language. Ports marked as outlet means fluid leaves the product and must be connected to the process inlet.
<b>4</b>	Check all joints are tight and leak free.
<b>5</b>	Where this product is incorporated into other equipment, it is the responsibility of the assembler to ensure safety


### 4.3 BACKFILLING

<b>1</b>	In situations where the chiller is situated physically lower than the application being cooled, fluid will apply pressure to the water circuit of the product.
<b>2</b>	The weakest seal is normally the tank lid, and this is typically where fluid will escape the unit.
<b>3</b>	Ideally, the product will be located higher or level with the product waterline. If this is not possible, a non-return solenoid valve kit can be installed as an optional standard assembly.
<b>4</b>	Please raise any questions with the sales team on sales@app-therm.com.

### 4.4 VOLTAGE SELECTION

	Different chillers will have different requirement for electrical supply. The specification and requirement can be found on the back plate of the chiller. Please ensure that the voltage supply and number of phases are correct on the site and your power supply can handle the stated current draw.
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### 4.4 FILLING PROCEDURES

	<p><b>a) Check all application valves are open, including solenoid valves and variable position valves.</b></p> <ul style="list-style-type: none"> <li>i) The product will require an open water circuit to pump into.</li> <li>ii) Any obstructions can increase the time, or entirely prevent the bleeding of air from the system.</li> </ul> <p><b>b) Remove the cap from the tank lid on the top of the product.</b></p> <ul style="list-style-type: none"> <li>i) Fill the tank to just underneath the bottom of the filling port.</li> </ul> <p><b>c) Switch the unit on</b></p> <ul style="list-style-type: none"> <li>i) Immediately after toggling this switch (assuming the power cord is connected and switched on), the pump will start running.</li> <li>ii) Keep the unit running until the water level in the tank drops and cuts out on the level switch interlock.</li> <li>iii) Turn the unit off at the main switch.</li> <li>iv) Fill the tank again to lift the level switch.</li> <li>v) Start the product</li> </ul>
	<b>Caution: Do not run the pump dry. Do not deadhead the pump.</b>
	<b>d) Repeat step c) until the chiller does not cut out on the level switch.</b>
	<p><b>e) Now with the unit running:</b></p> <ul style="list-style-type: none"> <li>i) Leave the cap off the tank for &gt;30mins to allow air to escape, or very loosely screwed on to prevent water splashing out of the tank if the unit has a 'flow through' design.</li> </ul> <p><b>f) Check the application and tubing for signs of leaks whilst the chiller is running.</b></p> <ul style="list-style-type: none"> <li>i) Replace the tank lid fully when satisfied the system is full and bled of air and no abnormal sound can be heard from the pump</li> </ul>



## 4.5 DRAINING A SYSTEM

- a) Isolate the unit. Have a suitable bucket or drain on-hand.
  - i) Remove the tank lid to allow air into the system.
  - ii) Disconnect hoses individually. Be aware hoses as well as the unit are filled with fluid.
  - iii) Use tank drain tap (If fitted)
  - iv) Consider using the red transport plugs to block product ports to give yourself time to empty hoses before continuing to empty the product.

- b) Local rules affect where fluid can be disposed of.

Ensure hazardous products do not enter the water course and are reclaimed from the unit for professional disposal.



## 5.0 OPERATION

K04/G04 series chillers are fitted with a high performance KR1 PID controller, which can control temperature to within 0.1°C of set point. In addition, there is a high and low temperature warning via the LED on the display of the controller, which is triggered if the temperature deviates more than 10°C from the set point.

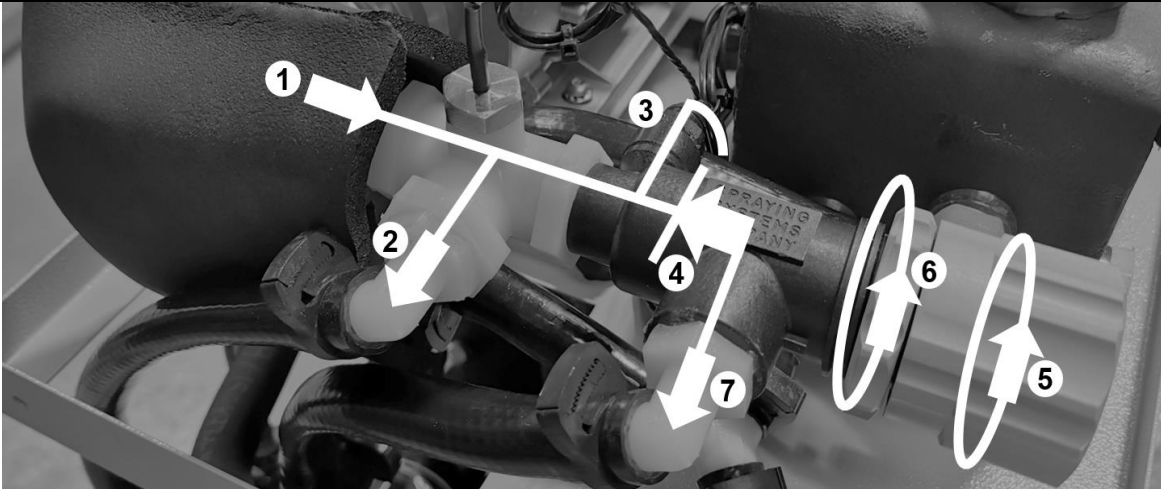
DISPLAY CONTENTS DURING NORMAL OPERATION	
1	Physical navigation buttons, up, down, return and enter.
2	8888.8 is the actual read value on input sensor.
3	888.8 is the setpoint value.
4	Rectangles bottom left 1-4 display when output is active.
5	MAN LED shows in manual mode (fixed output value).
6	°C or °F shows units as settable in the 'inP' group.
7	AL LED appears when output is beyond a set alarm point.
<b>ACCESS TO SETTINGS</b>	
8	Push the return button for more than 5 seconds. The upper display will show PASS while the lower display will show 0.
9	Using up and down buttons set the programmed password – full access is granted by entering '40'. ATC are not responsible for damage either to the chiller or the connected equipment as a result of changing parameters without ATC's oversight.
10	During parameter modification the instrument continues to perform process control. In certain conditions, when a configuration change can produce a significant change to the process, it is advisable to temporarily stop the controller from controlling during the programming procedure (control outputs will be OFF). A password equal to 2000 + the programmed value (i.e. 2000 + 40 = 2040). The control will restart automatically when the configuration procedure will be manually closed.
11	Push the return button. If the password is correct the display will show the acronym of the first parameter group 'inP'. Push button for more than 5 seconds, the instrument will come back to the "standard display".
12	The configuration parameters are collected in various groups. Every group defines all parameters related with a specific function (control, alarms, output functions).
13	Push return button for more than 5 seconds, the instrument will come back to the "standard display". For specific settings and guidance, review the controller datasheets provided by ATC. If you are not in receipt of these, please contact ATC using the information in the header of this document.
<b>GENERAL NAVIGATION</b>	
14	Return button; A short press allows to exit from the current parameter group and select a new parameter group. A long press allows you to close the configuration parameter procedure (the instrument will come back to the "standard display").
15	Enter button; When the upper display is showing a group and the lower display is blank, this key allows to enter in the selected group. When the upper display is showing a parameter and the lower display is showing its value, this key allows to store the selected value for the current parameter and access the next parameter within the same group.
16	Up button; Allows to increase the value of the selected parameter.
17	Down button; Allows to decrease the value of the selected parameter.
18	Pushing both Return and Enter buttons moves back to the previous group. Press return first to start. The selection of the group is cyclic (on a carousel), so it is possible to move back around to the group you require.



### 5.1 CHANGING SET POINT

ACHIEVING DESIRED SET POINT	
1	Push and hold the enter button  until it shows “SP 1”
2	Use the up and down arrows to set the temperature
3	Press enter button  again to set the temperature
4	The set value now will be activated, and the chiller will start

### 5.2 REGULATING PRESSURE/FLOW

POSITIVE DISPLACEMENT PUMPS & DISCRETE PRESSURE RELIEF VALVE	
<p>This arrangement comprises a positive displacement pump (most commonly a rotary vane type) with a spring-loaded pressure relief valve to provide better overpressure setting control with minimal flow losses compared to fixed orifice bypasses/reliefs. This annex describes ATC’s default settings and how to adjust the system.</p>	
	
<p>It is important to understand the basic principle that all else being equal, higher flow results in a higher demand for pressure. The motor generates the power required to turn the pump head and create that pressure. The more restrictive a water circuit is, the higher the pressure required to maintain flowrate. Positive displacement pumps are designed to generate high pressure and are mechanically tight - their RPM dictates flowrate. See image above.</p>	
1	<b>Pump discharge</b> – fluid leaves the pump head and enters the gauge-tee assembly. It passes the temperature sensor at the tee, and when the pressure relief is inactive, fluid heads towards no. 2.
2	<b>Outlet to process</b> – fluid heads out of the product to the application. Whatever restrictions lie downstream, fluid leaving this point has not passed through the pressure relief valve.
3	<b>Pressure gauge connection</b> – connection to a pressure gauge on the front panel of the product. This displays the pressure in the water circuit, <i>at the pump outlet, not the application which will be lower.</i>
4	<b>Pressure Relief Valve (PRV)</b> – spring tension in the body of the PRV determines whether fluid travels through point 2 or passes through to point 7.



<b>5</b>	<b>PRV adjustment knob</b> – rotate clockwise to increase maximum delivery pressure. Rotate anti-clockwise to limit maximum delivery pressure.
<b>6</b>	<b>PRV adjustment locknut</b> – release this locknut to adjust no.5. Ensure it is tightened once adjustments are made. If it is not, vibration may cause the adjustment knob to move on itself.
<b>7</b>	<b>Bypass flow outlet</b> – where the pressure requirement to overcome restrictions downstream of no.2 rises to be higher than the setting at no.5, the spring inside no.4 will compress and allow liquid to start bleeding through to no.7. It is important to understand that the nature of the spring means there can be no black and white point for pressure relief setting – the spring will slowly compress and bleed flow until all flow passes through no.7. When fully bypassing, all flow stays inside the chiller to protect the application.

<b>SETTING PRESSURE RELIEF VALVE(BYPASS)</b>	
Unless otherwise agreed at point of sale, the default setting for this type of pump and PRV arrangement is 3.33bar (50psi). If the relief valve has been interfered with and you would like to bring the chiller back to its default pressure setting. Follow the instruction below:	
<b>1</b>	<b>Isolate the chiller</b>
<b>2</b>	<b>Disconnect from the application if connected-</b> Review draining process from Section 4.5
<b>3</b>	<b>Connect the chiller’s process inlet to process outlet</b> – a short run hose around 1-2m (3-6ft) will be adequate.
<b>4</b>	<b>Start the chiller and follow the fill procedure from Section 4.4</b> - fluid will now be running through a short loop with very low pressure required to overcome the restriction.
<b>5</b>	<b>With the chiller running, very slowly kink the short run of hose fitted above</b> – this simulates a blocked application – this is known as ‘deadheading’ the pump. Without PRV, the pump motor would stall or hoses might blow off. Watch the pressure gauge climb as you apply the kink.
<b>6</b>	<b>The pressure gauge will eventually stop climbing with the hose fully kinked</b> – note the value; this is the setting of the PRV where all flow is bypassed.
<b>7</b>	Contact ATC if you’re unsure over whether your desired setting is reasonable for the product you have.








## 6.0 BASIC TROUBLESHOOTING

AIRCOOLED CHILLER TROUBLESHOOTING		
#	SYMPTOM	CAUSES
1	Compressor or pump motor not running. Large condenser fan is running, and control illuminated.	Level switch may have been tripped – Fill the tank up again to resolve the issue
		High pressure switch may have been tripped: <ul style="list-style-type: none"> <li>a) Check fan spins freely and that condenser is clear of debris.</li> <li>b) Assess whether the ambient temperature is too high.</li> <li>c) Assess whether ventilation/air circulation is poor.</li> <li>d) Assess whether surrounding equipment is generating hot air and feeding it into the chiller air intakes.</li> </ul>
		If fitted, a low-pressure switch may have been tripped – this indicates refrigerant loss. A multimeter is required to test this.
		If running at a high setpoint, or if operating conditions have changed and raised the fluid temperature, it is possible the compressor has turned itself on high temperature internal protection.
2	Noisy Operation	Pump motor or fan motor bearings may have failed.
		Pump head vane or seal may have failed.
		In a 3-phase system, phase rotation may be incorrect.
3	High fluid pressure/low flow rate	Fluid lines may have become fouled through solid debris or biological growth. Ensure biocides or pre-mixed biocidal process fluids are being used. Ensure hoses are not transparent or translucent – UV light entering prompts growth.
		General fluid leak can lead to flow rate failure.
		Excess fittings, too many sharp direction changes, too small a diameter hose for flowrate or hoses too long at the wrong diameter.
4	Fluid collecting or leaking	Leaks are impossible to diagnose remotely, but usually you will see a pool of fluid on a lower surface. Do not confuse this with condensation from cold parts of the fridge.
		Review the chemical compatibility of your fluid with the chiller. Contact ATC if you are unsure.
5	Poor Cooling Performance	Check if the fans are running. Clean the condenser coil. Excess thermal load applied. Assess whether the ambient temperature is too high. Assess whether ventilation/air circulation is poor. Assess whether surrounding equipment is generating hot air and feeding it into the chiller air intakes.
Please contact ATC if you could not find the information you were looking for or still have an issue with the unit		





## 7.0 END USER MAINTANANCE

	Caution: Failure to carry out service at the specified intervals may permanently damage your equipment.											
<b>Print this sheet out and display close to the chiller to maximize the visibility of maintenance requirements.</b>												
<b>Weekly</b>		<b>Week 1</b>			<b>Week 2</b>			<b>Week 3</b>			<b>Week 4</b>	
Check Fluid Level – Top up as required												
<b>Monthly</b>												
	<b>J</b>	<b>F</b>	<b>M</b>	<b>A</b>	<b>M</b>	<b>J</b>	<b>J</b>	<b>A</b>	<b>S</b>	<b>O</b>	<b>N</b>	<b>D</b>
Check the condenser is free from dust or accumulation of debris												
<b>Annually</b>												
	<b>Y1</b>		<b>Y2</b>		<b>Y3</b>		<b>Y4</b>		<b>Y5</b>		<b>Y6</b>	
Drain process fluid and replace with fresh fluid												
Check for fluid leaks throughout chiller and application												
Clear any debris from inside the chiller												
A vacuum cleaner is recommended for cleaning out the condenser, while soft cloths and IPA are recommended for cleaning metallic surfaces. If any spillages have occurred, best practice is to allow the water to evaporate off and wipe up remaining glycol residue with a cloth. Always clean with power supply isolated.												
	Caution: Never blow out the condenser with compressed air											
	Caution: If the main lead is lost or damaged, contact ATC who will be able to supply correct specification replacement.											



**Applied Thermal Control Ltd**  
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Support@app-therm.com

**Installation, Operation & Service Manual**

**G04/K04**

Rev 1 – 05/04/23

---

## 8.0 DECLARATION AND APPROVALS



**Applied Thermal Control Ltd**  
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# Operating Manual; Declarations & Approvals

## Annex J-5

### DOCUMENT DETAILS

Date	03/FEB/2021	Author(s)	MJH	Page	1 / 1	Revision	01
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### CONFLICT MINERALS COMPLIANCE STATEMENT

Applied Thermal Control (ATC) adheres to and embraces the ethical values that support our everyday activities. As an expression of these principles and ethical values, ATC adheres to the principle of responsible sourcing of components containing precious and non-precious metals and metal salts in compliance with applicable laws and regulations.

The metals considered are Tantalum (Ta), Tungsten (W), Tin (Sn) and Gold (Au). ATC actively sources components from suppliers known to be reputable and could demonstrate compliance upon request with the Conflict Minerals acts and guidelines.

ATC uses Gold and Tin in electrical components, on PCBs and in rotating machinery, as governed by technical requirements of products. These metals could potentially originate from conflict mineral sites. As many of our suppliers do not purchase these metals direct from smelters, both they and ATC must rely heavily on information that will be provided by their suppliers to determine the source and chain of the metals in those products.

ATC is committed to working with its customers and supply chain to meet the customer's specification and requirements with regards to traceability, sourcing requirements and restrictions. ATC commits that, to the best of our knowledge, our suppliers are complying with the conflict minerals act as stated in their documentation. These statements are reviewed, and updates obtained as required.

Robert Poniatowski, CEO  
Signed in Barrow-upon-Soar, UK, date 03/FEB/2021



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# Annex J-7

## DOCUMENT DETAILS

Date	03/FEB/2021	Author(s)	MJH	Page	1 / 1	Revision	01
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### WHAT IS THE REACH REGULATION 1907/2006?

REACH is a regulation of the European Union, adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals, while enhancing the competitiveness of the EU chemicals industry. REACH places the burden of proof on companies. To comply with the regulation, companies must identify and manage the risks linked to the substances they manufacture and market in the EU. They have to demonstrate to ECHA how the substance can be safely used, and they must communicate the risk management measures to the users. If the risks cannot be managed, authorities can restrict the use of substances in different ways. In the long run, the most hazardous substances should be substituted with less dangerous ones. REACH stands for Registration, Evaluation, Authorization and Restriction of Chemicals. It entered into force on 1/JUN/2007.

### REACH 'ARTICLE' COMPLIANCE CONSIDERATIONS

#### REACH ANNEX XVII COMPLIANCE

Substances under Annex XVII are restricted either in full (not to be used at all) or for specific uses (can be used in some uses but cannot be used in identified uses).

Applied Thermal Control has contacted all our suppliers and to the best of our knowledge, none of the articles that we sell intentionally contain any of the Annex XVII substances currently on the candidate list in concentrations of >0.1% by weight.

#### REACH ANNEX XIV COMPLIANCE

Substances under Annex XIV require authorization to use in the EU after sunset date, require communication to downstream recipients when over threshold (0.1% w/w at article level) and require notification to ECHA when SVHC over threshold and imported over 1000kg annually and use not already registered.

Applied Thermal Control has contacted all our suppliers and to the best of our knowledge, none of the articles that we sell intentionally contain any of the Annex XVII substances currently on the candidate list in concentrations of >0.1% by weight.

#### SVHC LIST COMPLIANCE

Substances of Very High Concern (SVHC) require communication to downstream recipients when over threshold (0.1% w/w at the article level), notification to the European Chemicals Agency (ECHA) when SVHC over threshold and when imported over 1000kg annually and use not already registered.

Applied Thermal Control has contacted all our suppliers and to the best of our knowledge, none of the articles that we sell intentionally contain any of the Annex XVII substances currently on the candidate list in concentrations of >0.1% by weight.

### DECLARATION

Robert Poniatowski, CEO  
Signed in Barrow-upon-Soar, UK, date 03/FEB/2021



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# Operating Manual; Declarations & Approvals Annex J-8

## DOCUMENT DETAILS

Date	03/FEB/2021	Author(s)	MJH	Page	1 / 1	Revision	01
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## WHAT IS THE POPs REGULATION 2019/1021?

POPs stands for persistent organic pollutants. In Europe, the global Stockholm Convention is implemented through POPs legislation. POPs are organic substances that persist in the environment, accumulate in living organisms and pose a risk to our health and the environment. They can be transported by air, water or migratory species across international borders, reaching regions where they have never been produced or used. International risk management is necessary as no region can manage the risks posed by these substances alone.

The European Parliament (and Council) issued regulation 2019/1021 on 20/JUN/2019, and further amended (regulation 2020/784) on 8/APR/2020.

## POPs LISTED UNDER INITIAL REGULATION 2019/1021

### Pesticides;

Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Mirex, Toxaphene.

### Industrial Chemicals;

Hexachlorobenzene, Polychlorinated Biphenyls (PCBs).

### Industrial Chemical Byproducts;

*Hexachlorobenzene byproducts;*

Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDF), and PCBs.

## POPs LISTED UNDER AMENDMENT 2020/784

Perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds.

## POPs COMPLIANCE STATEMENT

We certify that to the best of our knowledge, based upon up-to-date information from our suppliers, all products supplied by Applied Thermal Control are fully POPs compliant in accordance with regulations and amendments above mentioned.

## DECLARATION

Robert Poniatowski, CEO  
Signed in Barrow-upon-Soar, UK, date 03/FEB/2021



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## Operating Manual; Declarations & Approvals

# Annex J-10

### DOCUMENT DETAILS

Date	03/FEB/2021	Author(s)	MJH	Page	1 / 1	Revision	02
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### WHAT IS THE RoHS DIRECTIVE?

The RoHS Directive places restrictions on the use of certain hazardous substances in electrical and electronic equipment (EEE). RoHS compliance has been required for many years, however in 2014 it became a mandatory requirement under CE Marking. ATC products do not clearly fall within any of the existing categories of equipment, but as of 23/JUL/2019, all EEE not covered falls within scope of the directive. In contrast to RoHS 1, RoHS 2 is a CE marking Directive, and requires, for finished EEE, the use of the CE mark on the product to show compliance. The responsibility for affixing the CE mark resides with the manufacturer.

### RoHS 1 2002/95/EC

Adopted in February 2003 by the EU and taking effect on 1/JUL/2006, RoHS 1 restricted the use of 6 hazardous materials;

- 1) Lead (Pb)
- 2) Mercury (Hg)
- 3) Cadmium (Cd)
- 4) Hexavalent Chromium (Cr6+)
- 5) Polybrominated Biphenyls (PBB)
- 6) Polybrominated Diphenyl Ether (PBDE)

*We certify that to the best of our knowledge, based upon up-to-date information from our suppliers, all products supplied by Applied Thermal Control are fully RoHS 1 compliant.*

### RoHS 2 2011/65/EU

Adopted in July 2011 by the EU and taking effect on 2/JAN/2013, RoHS 2 expands the scope of RoHS 1 by adding new categories. RoHS 2 compliance is required to CE mark the product. Compliance with RoHS 2 is mandatory from 22/JUL/2019.

*We certify that to the best of our knowledge, based upon up-to-date information from our suppliers, all products supplied by Applied Thermal Control are fully RoHS 2 compliant.*

### RoHS 3 2015/863/EU

Adopted in 2015 by the EU and taking effect from 22/JUL/2019, RoHS 3 adds four additional substances to RoHS 1's list.

- 1) Bis(2-Ethylhexyl) phthalate (DEHP): < 1000 ppm
- 2) Benzyl butyl phthalate (BBP): < 1000 ppm
- 3) Dibutyl phthalate (DBP): < 1000 ppm
- 4) Di-isobutyl phthalate (DIBP): < 1000 ppm

*We certify that to the best of our knowledge, based upon up-to-date information from our suppliers, all products supplied by Applied Thermal Control are fully RoHS 3 compliant.*

### DECLARATION

Robert Poniatowski, CEO  
Signed in Barrow-upon-Soar, UK, date 03/FEB/2021



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# Operating Manual; Declarations & Approvals

## Annex J-11

### DOCUMENT DETAILS

Date | 5/APR/2023 | Author(s) | MM | Page | 1 / 1 | Revision | 1

### EU DECLARATION OF CONFORMITY

Document layout; Governed by Machinery Directive 2006/42/EC, Annex II.

### REGISTERED BUSINESS ADDRESS

Applied Thermal Control Ltd, 39 Hayhill Industrial Estate, Barrow-upon-Soar, Loughborough, LE12 8LD, UK.

### AUTHORISATION TO COMPILE THE TECHNICAL FILE

Mitchell Howard, address as above.

### DESCRIPTION & IDENTIFICATION OF MACHINERY

Generic denomination;	G-Series
Function;	Recirculating chiller
Model;	All with 'G' prefix.
Type;	Air-cooled or water-cooled vapour compression-based.
Serial number;	
Commercial name;	As above.

### NOTIFIED BODY

Not applicable.

### QUALITY ASSURANCE SYSTEM

QMS International Ltd, Muspole Court, Muspole Street, Norwich, NR3 1DJ, UK. ASCB Registered; 201409-2.

### DECLARATION

Applied Thermal Control declares that the machinery described above fulfils all the relevant provisions of the directives and standards below.

Directive	Harmonised Standards applied
Machinery Directive 2006/42/EC (inclusive Low Voltage Directive 2014/35/EU)	EN ISO 12100:2010 (MD) BS EN 61010-1:2010+A1:2019 (LVD)
EMC Directive 2014/30/EU	IEC 61000-6-2:2005 IEC 61000-6-4:2006 +A1:2011
RoHS Directive 2011/65/EU (RoHS 2) RoHS Directive (EU) 2015/863 (RoHS 3)	EN IEC 63000:2018
Pressure Equipment Directive (2014/68/EC)	Out of Scope. Sound Engineering Practice (SEP) applied.

### PERSON EMPOWERED TO DRAW UP DECLARATION



Robert Poniatowski, CEO  
 Signed in Barrow-upon-Soar, UK, date 5/APR/2023



**Applied Thermal Control Ltd**  
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# Operating Manual; Declarations & Approvals

## Annex J-21

### DOCUMENT DETAILS

Date	05/APR/2023	Author(s)	MM	Page	1 / 1	Revision	1
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### UKCA DECLARATION OF CONFORMITY (DoC)

Demand created by; The Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019

### REGISTERED BUSINESS ADDRESS

Applied Thermal Control Ltd, 39 Hayhill Industrial Estate, Barrow-upon-Soar, Loughborough, LE12 8LD, UK.

### AUTHORISATION TO COMPILE THE TECHNICAL FILE

Mitchell Howard, Applied Thermal Control Ltd, 39 Hayhill Industrial Estate, Barrow-upon-Soar, Loughborough, LE12 8LD, UK.

### DESCRIPTION & IDENTIFICATION OF MACHINERY

Generic denomination;	G-Series
Function;	Recirculating Chiller
Model;	All with 'G' prefix.
Type;	Air-cooled or water-cooled vapour compression based.
Serial number;	
Commercial name;	As above.

### NOTIFIED BODY

Not applicable

### QUALITY ASSURANCE SYSTEM

QMS International Ltd, Muspole Court, Muspole Street, Norwich, NR3 1DJ, United Kingdom.  
 ASCB Registered; 201409-2

### DECLARATION

The manufacturer declares that the machinery described above is in conformity with the relevant statutory requirements applicable to the specific product. The manufacturer takes full responsibility for the product's compliance.

- Supply of Machinery (Safety) Regulations 2008
- Electromagnetic Compatibility Regulations 2016
- Electrical Equipment (Safety) Regulations 2016
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

### PERSON EMPOWERED TO DRAW UP DECLARATION

Robert Poniatowski, CEO  
 Signed in Barrow-upon-Soar, UK, date 05/APR/2023





**SAFETY DATA SHEET**  
**HEXID A4 HEAT TRANSFER FLUID**  
 Conforming to Directive 1907/2006/EC

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

---

1.1.	Product Name	Hexid A4
1.2.	Manufacturer	Applied Thermal Control Limited 39 Hayhill Industrial Estate, Barrow upon Soar, Leicestershire, LE12 8LD. United Kingdom. www.app-therm.com
1.3.	Telephone Number	+44(0)1530 839998
1.4.	Email	<a href="mailto:sales@app-therm.com">sales@app-therm.com</a>
1.5.	Emergency Telephone Number	+44(0)1530 839998
1.6.	Intended/Recommended Use	Heat Transfer Fluid

---

**SECTION 2: HAZARDS IDENTIFICATION**

---

2.1.	Classification of the substance or mixture	The product is not classified as dangerous according to Regulation (EC) No. 1272/2008. This mixture is not classified as dangerous according to Directive 1999/45/EC.
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**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

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3.1.	Chemical Nature	Water (CAS 7732-18-5), not classified. Propylene glycol (CAS 57-55-6) (REACH 01-2119456809-23) (EINECS 200-338-0) not classified. Fluorescein (trace) and biocide (trace) not classified.
3.2.	Food Grade	

---

**SECTION 4: FIRST AID MEASURES**

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4.1.	General advise	No special precautions required. Treat symptomatically.
4.1.	Eye Contact	Rinse thoroughly with plenty of water, also under the eyelids. Remove contact lenses after a few minutes and continue rinsing. If symptoms persist, call a physician.
4.2.	Skin Contact	Wash off immediately with plenty of water. If skin irritation persists, call a physician.
4.3.	Inhalation	Remove to fresh air. If symptoms persist, call a physician.
4.4.	Ingestion	Rinse mouth with water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

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**SECTION 5: FIREFIGHTING MEASURES**

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5.1.	Extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, foam, dry powder or CO2. Alcohol-resistant foam
5.2.	Unsuitable extinguishing Media	High volume water jet. Do not use a solid water stream as it may scatter and spread fire.
5.3.	Specific hazards during firefighting	In fire conditions, toxic decomposition products may be formed (see also section 10). In combustion, emits fumes, smoke, carbon dioxide (CO2) and carbon monoxide (CO). Heating will cause a pressure rise - with severe risk of bursting and explosion, Violent steam generation or eruption may occur upon application of direct water to hot liquids.
5.4.	Advice for firefighters	In the event of fire, wear self-contained breathing apparatus. Wear personal protective equipment. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Keep containers cool by spraying with water if exposed to fire. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Burning fluids may be extinguished by dilution with water



**SAFETY DATA SHEET**  
**HEXID A4 HEAT TRANSFER FLUID**  
 Conforming to Directive 1907/2006/EC

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

- 6.1. Personal precautions  
 Use personal protective equipment. Avoid contact with skin and eyes. Keep unnecessary and unprotected personnel from entering the area.
- 6.2. Precaution to protect the environment  
 Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.
- 6.3. Clean-up procedures  
 Contain the spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal. Dike the area of spill to prevent spreading and pump liquid to salvage tank. Treat recovered material as described in section 13 Disposal considerations.

**SECTION 7: HANDLING AND STORAGE**

- 7.1. Precautions for safe handling  
 Keep container tightly closed. Handle in accordance with good industrial hygiene and safety practice. Spills of these organic materials on hot fibrous insulations may lead to lowering of the auto-ignition temperatures possibly resulting in spontaneous combustion.
- 7.2. Conditions for safe storage  
 Keep only in the original container.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

- 8.1. Control parameters  
 Component: Propane-1,2-diol CAS-No. 57-55-6  
 Other Occupational Exposure Limit Values EH40 WEL, Time Weighted Average (TWA);, Total vapour and particulates.150 ppm, 474 mg/m<sup>3</sup>  
 EH40 WEL, Time Weighted Average (TWA);, Particulate.10 mg/m<sup>3</sup>  
 ELV (IE), Time Weighted Average (TWA);, Total vapour and particulates.150 ppm, 470 mg/m<sup>3</sup>  
 ELV (IE), Time Weighted Average (TWA);, Particulate.10 mg/m<sup>3</sup>
- 8.2. Exposure controls/Appropriate engineering controls  
 Local exhaust. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.
- Personal protective equipment  
 Respiratory protection Suitable respiratory protective device Combination filter: A-P2  
 Filter Type Combined particulates and organic vapour type  
 Hand protection Category short time exposure Break through time> 10 min  
 Protective index Class 1 When prolonged exposure is expected: Break through time> 120 min  
 Protective index Class 4 Observe the information of the glove manufacturers on permeability.  
 Protective gloves should be chosen according to Workplace Safety Assessment.  
 Gloves recommended according to EN 374 (protection against chemicals).
- Material Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

- |      |                             |                                |
|------|-----------------------------|--------------------------------|
| 9.1  | Appearance at 20°C          | Fluorescent green clear liquid |
| 9.2  | Odour                       | Almost odourless               |
| 9.3  | Flash point                 | Boils without flashing         |
| 9.4  | Ignition temperature        | Not Available                  |
| 9.5  | Flammability Limit          | Not Available                  |
| 9.6  | Oxidizing Properties        | Not Available                  |
| 9.7  | Auto flammability           | 450°C                          |
| 9.8  | Density at 25°C             | ~1.036g/cm <sup>3</sup>        |
| 9.9  | pH (as is)                  | 7                              |
| 9.10 | Boiling point               | 102°C                          |
| 9.7  | Auto flammability           | 450°C                          |
| 9.8  | Solubility in water         | Miscible                       |
| 9.9  | Freezing point              | -21°C                          |
| 9.10 | Specific Heat Capacity      | 3.78kJ/kg °K                   |
| 9.11 | Viscosity, Kinetic, at 25°C | 3.51mPa.s                      |



**SAFETY DATA SHEET**  
**HEXID A4 HEAT TRANSFER FLUID**  
Conforming to Directive 1907/2006/EC

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**SECTION 10: STABILITY AND REACTIVITY**

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- 10.1. Reactivity  
Stable under recommended storage conditions. No dangerous reaction known under conditions of normal use.
- 10.2. Chemical stability  
No decomposition if stored and applied as directed. Stable under recommended storage conditions. Hygroscopic.
- 10.3. Hazardous reactions  
Hazardous polymerisation does not occur.
- 10.4. Conditions to avoid  
Generation of gas from decomposition causes pressure in closed systems. Keep away from direct sunlight. Avoid high temperatures. Avoid temperatures exceeding the decomposition temperature. Avoid UV light.
- 10.5. Materials to avoid  
Strong acids, Strong bases, Strong oxidizing agents.
- 10.6. Hazardous decomposition products  
Aldehydes, Alcohols, Ether, Organic acids.

---

**SECTION 11: TOXICOLOGICAL INFORMATION**

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- 11.1. Toxicity Oral  
LD50 : > 20000 mg/kg (rat) This product can present a small hazard if large quantities are swallowed.
- 11.2. Inhalation  
LC50 : 6.15 mg/l (rat; 4 h; vapour) At ambient temperature the exposure to vapours is minimal due to a low volatility rate. Inhalation may cause irritation to the nose, throat, upper respiratory tract and lungs. No deaths occurred
- 11.3. Dermal  
LD50 : > 20000 mg/kg (rabbit) Prolonged skin contact is unlikely to result in absorption of harmful amounts. Skin irritation by prolonged exposure is unlikely. Repeated contact may cause flaking and softening of skin.
- 11.4. Eyes  
Slight irritation is possible. Direct contact with eyes may cause temporary irritation. Corneal injury is unlikely.
- 11.5. Sensitisation  
Patch test on human volunteers did not demonstrate sensitisation properties.
- 11.6. CMR Carcinogenicity  
Animal testing did not show any carcinogenic effects. Information given is based on data obtained from similar substances.
- 11.7. Mutagenicity  
No data available.
- 11.8. Reproductive toxicity  
No data available.
- 11.9. Specific Target Organ Toxicity  
Single exposure no data available. Repeated exposure no data available.
- 11.10. Other toxic properties  
Repeated dose toxicity. In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects. Aspiration hazard Due to its physical properties, the substance does probably not pose any aspiration hazard.
- 11.11. Other relevant toxicity information  
Handle in accordance with good industrial hygiene and safety practice.
- 11.12. Experience with human exposure  
Health injuries are not known or expected under normal use.



**SAFETY DATA SHEET**  
**HEXID A4 HEAT TRANSFER FLUID**  
 Conforming to Directive 1907/2006/EC

**SECTION 12: ECOLOGICAL INFORMATION**

- 12.1. Acute toxicity  
 Fish - LC50 : 40613 mg/l (Oncorhynchus mykiss; 96 h) (static test)  
 Daphnia and other aquatic invertebrates - LC50 : 18340 mg/l (Ceriodaphnia Dubia (water flea); 48 h) (static test)  
 Algae - ErC50 : 19000 mg/l (Pseudokirchneriella subcapitata (green algae); 96 h) (Growth inhibition)  
 Bacteria - NOEC : > 20000 mg/l (Pseudomonas putida; 18 h) Chronic toxicity  
 Aquatic invertebrates - NOEC : 13020 mg/l (Ceriodaphnia Dubia (water flea); 7 d) (semi-static test)
- 12.2. Persistence and degradability  
 Biodegradability 81 % (anaerobic; Exposure Time: 28 d)(OECD 301 F)  
 Readily biodegradable 96 % (anaerobic; Exposure Time: 64 d)(OECD 306.)
- 12.3. Bioaccumulative potential  
 BCF - 0.09 estimated Low bioaccumulative potential
- 12.4. Mobility  
 Estimated Koc < 1, indicating very high soil mobility.
- 12.5. PBT and vPvB assessment  
 Not a PBT or vPvB substance or mixture
- 12.6. Other adverse effects  
 Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

**SECTION 13: DISPOSAL CONSIDERATION**

- 13.1. Waste treatment methods  
 Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.
- 13.2. Contaminated packaging  
 Empty contaminated packaging thoroughly. They can be recycled after thorough and proper cleaning. Packaging that cannot be cleaned are to be disposed of in the same manner as the product.
- 13.3. European Waste Catalogue Number  
 No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

**SECTION 14: TRANSPORT INFORMATION**

- Not dangerous goods for ADR, RID, IMDG and IATA.
- 14.1. EEC Regulations  
 UNNO None Class None Packing Group None  
 Road & Rail Transport (ADR & RID) NoneIMDG Not Applicable ICOA None
- 14.2. Export commodity code  
 39074000  
 Classification - Polycarbonates.
- 14.3. Weight and dimensions  
 5Kg per 5 litre container. 19x14x29cm.
- 14.4. Manufactured in the United Kingdom

**SECTION 15: REGULATORY INFORMATION**

- |      |                        |                                       |
|------|------------------------|---------------------------------------|
| 15.1 | Classification         | Not classified as hazardous to users. |
| 15.2 | CAS No.                | 57556                                 |
| 15.3 | Risk or Safety phrases | None                                  |
| 15.4 | Labelling              | None                                  |

**SECTION 16: OTHER INFORMATION**

Key literature references and sources for data taken from supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet. Other information - The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

# SAFETY DATA SHEET

## HEXID A6 HEAT TRANSFER FLUID

Conforming to Directive 1907/2006/EC

---

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

---

<b>1.1. Product Name</b>	Hexid A6
<b>1.2. Supplier</b>	Applied Thermal Control Limited 39 Hayhill Industrial Estate, Barrow upon Soar, Leicestershire, LE12 8LD. United Kingdom. www.app-therm.com
<b>1.3. Telephone Number</b>	+44(0)1530 839998
<b>1.4. Email</b>	<a href="mailto:sales@app-therm.com">sales@app-therm.com</a>
<b>1.5. Emergency Telephone Number</b>	+44(0)1530 839998
<b>1.6. Intended/Recommended Use</b>	Heat Transfer Fluid

---

### SECTION 2: HAZARDS IDENTIFICATION

---

- 2.1. Classification of the substance or mixture**  
The product is not classified as dangerous according to Regulation (EC) No. 1272/2008.  
This mixture is not classified as dangerous according to Directive 1999/45/EC.

---

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

---

- 3.1. Chemical Nature** Water (CAS 7732-18-5), not classified.  
Propylene glycol (CAS 57-55-6) (REACH 01-2119456809-23)  
(EINECS 200-338-0) not classified.  
Fluorescein (trace) and biocide (trace) not classified.
- 3.2. Food Grade**

---

### SECTION 4: FIRST AID MEASURES

---

- General advise** No special precautions required. Treat symptomatically.
- 4.1. Eye Contact** Rinse thoroughly with plenty of water, also under the eyelids. Remove contact lenses after a few minutes and continue rinsing. If symptoms persist, call a physician.
- 4.2. Skin Contact** Wash off immediately with plenty of water. If skin irritation persists, call a physician.
- 4.3. Inhalation** Remove to fresh air. If symptoms persist, call a physician.
- 4.4. Ingestion** Rinse mouth with water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

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### SECTION 5: FIREFIGHTING MEASURES

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- 5.1. Extinguishing media**  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Water spray, foam, dry powder or CO<sub>2</sub>. Alcohol-resistant foam
- 5.2. Unsuitable extinguishing Media**  
High volume water jet. Do not use a solid water stream as it may scatter and spread fire.
- 5.3. Specific hazards during firefighting**  
In fire conditions, toxic decomposition products may be formed (see also section 10). In combustion, emits fumes, smoke, carbon dioxide (CO<sub>2</sub>) and carbon monoxide (CO). Heating will cause a pressure rise - with severe risk of bursting and explosion, Violent steam generation or eruption may occur upon application of direct water to hot liquids.
- 5.4. Advice for firefighters**  
In the event of fire, wear self-contained breathing apparatus. Wear personal protective equipment. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Keep containers cool by spraying with water if exposed to fire. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Burning fluids may be extinguished by dilution with water

# SAFETY DATA SHEET

## HEXID A6 HEAT TRANSFER FLUID

Conforming to Directive 1907/2006/EC

### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal precautions

Use personal protective equipment. Avoid contact with skin and eyes. Keep unnecessary and unprotected personnel from entering the area.

#### 6.2. Precaution to protect the environment

Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

#### 6.3. Clean-up procedures

Contain the spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal. Dike the area of spill to prevent spreading and pump liquid to salvage tank. Treat recovered material as described in section 13 Disposal considerations.

### SECTION 7: HANDLING AND STORAGE

#### 7.1. Precautions for safe handling

Keep container tightly closed. Handle in accordance with good industrial hygiene and safety practice. Spills of these organic materials on hot fibrous insulations may lead to lowering of the auto-ignition temperatures possibly resulting in spontaneous combustion.

#### 7.2. Conditions for safe storage

Keep only in the original container.

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1. Control parameters

Component: Propane-1,2-diol CAS-No. 57-55-6

Other Occupational Exposure Limit Values EH40 WEL, Time Weighted Average (TWA):, Total vapour and particulates.150 ppm, 474 mg/m<sup>3</sup>

EH40 WEL, Time Weighted Average (TWA):, Particulate.10 mg/m<sup>3</sup>

ELV (IE), Time Weighted Average (TWA):, Total vapour and particulates.150 ppm, 470 mg/m<sup>3</sup>

ELV (IE), Time Weighted Average (TWA):, Particulate.10 mg/m<sup>3</sup>

#### 8.2. Exposure controls/Appropriate engineering controls

Local exhaust. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

#### Personal protective equipment

Respiratory protection Suitable respiratory protective device Combination filter: A-P2

Filter Type Combined particulates and organic vapour type

Hand protection Category short time exposure Break through time > 10 min

Protective index Class 1 When prolonged exposure is expected: Break through time > 120 min

Protective index Class 4 Observe the information of the glove manufacturers on permeability.

Protective gloves should be chosen according to Workplace Safety Assessment.

Gloves recommended according to EN 374 (protection against chemicals).

Material Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374.

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1	Appearance at 20°C	Fluorescent pink clear liquid
9.2	Odour	Almost odourless
9.3	Flash point	Boils without flashing
9.4	Ignition temperature	Not Available
9.5	Flammability Limit	Not Available
9.6	Oxidizing Properties	Not Available
9.7	Auto flammability	450°C
9.8	Density at 25°C	~1.06g/cm <sup>3</sup>
9.9	pH (as is)	7
9.10	Boiling point	102°C
9.7	Auto flammability	450°C
9.8	Solubility in water	Miscible
9.9	Freezing point	-45°C

# SAFETY DATA SHEET

## HEXID A6 HEAT TRANSFER FLUID

Conforming to Directive 1907/2006/EC

### 10: STABILITY AND REACTIVITY

#### 10.1. Reactivity

Stable under recommended storage conditions. No dangerous reaction known under conditions of normal use.

#### 10.2. Chemical stability

No decomposition if stored and applied as directed. Stable under recommended storage conditions. Hygroscopic.

#### 10.3. Hazardous reactions

Hazardous polymerisation does not occur.

#### 10.4. Conditions to avoid

Generation of gas from decomposition causes pressure in closed systems. Keep away from direct sunlight. Avoid high temperatures. Avoid temperatures exceeding the decomposition temperature. Avoid UV light.

#### 10.5. Materials to avoid

Strong acids, Strong bases, Strong oxidizing agents.

#### 10.6. Hazardous decomposition products

Aldehydes, Alcohols, Ether, Organic acids.

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### SECTION 11: TOXICOLOGICAL INFORMATION

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#### 11.1. Toxicity Oral

LD50 : > 20000 mg/kg (rat) This product can present a small hazard if large quantities are swallowed.

#### 11.2. Inhalation

LC50 : 6.15 mg/l (rat; 4 h; vapour) At ambient temperature the exposure to vapours is minimal due to a low volatility rate. Inhalation may cause irritation to the nose, throat, upper respiratory tract and lungs. No deaths occurred

#### 11.3. Dermal

LD50 : > 20000 mg/kg (rabbit) Prolonged skin contact is unlikely to result in absorption of harmful amounts. Skin irritation by prolonged exposure is unlikely. Repeated contact may cause flaking and softening of skin.

#### 11.4. Eyes

Slight irritation is possible. Direct contact with eyes may cause temporary irritation. Corneal injury is unlikely.

#### 11.5. Sensitisation

Patch test on human volunteers did not demonstrate sensitisation properties.

#### 11.6. CMR Carcinogenicity

Animal testing did not show any carcinogenic effects. Information given is based on data obtained from similar substances.

#### 11.7. Mutagenicity

No data available.

#### 11.8. Reproductive toxicity

No data available.

#### 11.9. Specific Target Organ Toxicity

Single exposure no data available. Repeated exposure no data available.

#### 11.10. Other toxic properties

Repeated dose toxicity. In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects. Aspiration hazard Due to its physical properties, the substance does probably not pose any aspiration hazard.

#### 11.11. Other relevant toxicity information

Handle in accordance with good industrial hygiene and safety practice.

#### 11.12. Experience with human exposure

Health injuries are not known or expected under normal use.

# SAFETY DATA SHEET

## HEXID A6 HEAT TRANSFER FLUID

Conforming to Directive 1907/2006/EC

### SECTION 12: ECOLOGICAL INFORMATION

#### 12.1. Acute toxicity

Fish - LC50 : 40613 mg/l (Oncorhynchus mykiss; 96 h) (static test)

Daphnia and other aquatic invertebrates - LC50 : 18340 mg/l (Ceriodaphnia Dubia (water flea); 48 h) (static test)

Algae - ErC50 : 19000 mg/l (Pseudokirchneriella subcapitata (green algae); 96 h) (Growth inhibition)

Bacteria - NOEC : > 20000 mg/l (Pseudomonas putida; 18 h) Chronic toxicity

Aquatic invertebrates - NOEC : 13020 mg/l (Ceriodaphnia Dubia (water flea); 7 d) (semi-static test)

#### 12.2. Persistence and degradability

Biodegradability 81 % (anaerobic; Exposure Time: 28 d)(OECD 301 F)

Readily biodegradable 96 % (anaerobic; Exposure Time: 64 d)(OECD 306.)

#### 12.3. Bioaccumulative potential

BCF - 0.09 estimated Low bioaccumulative potential

#### 12.4. Mobility

Estimated Koc < 1, indicating very high soil mobility.

#### 12.5. PBT and vPvB assessment

Not a PBT or vPvB substance or mixture

#### 12.6. Other adverse effects

Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

### SECTION 13: DISPOSAL CONSIDERATION

#### 13.1. Waste treatment methods

Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.

#### 13.2. Contaminated packaging

Empty contaminated packaging thoroughly. They can be recycled after thorough and proper cleaning. Packaging that cannot be cleaned are to be disposed of in the same manner as the product.

#### 13.3. European Waste Catalogue Number

No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

### SECTION 14: TRANSPORT INFORMATION

Not dangerous goods for ADR, RID, IMDG and IATA.

#### 14.1. EEC Regulations

**UNNO** None **Class** None **Packing Group** None

Road & Rail Transport (ADR & RID) None **IMDG** Not Applicable **ICOA** None

### SECTION 15: REGULATORY INFORMATION

**15.1** Classification Not classified as hazardous to users.

**15.2** CAS No. 57556

**15.3** Risk or Safety phrases None

**15.4** Labelling None

### SECTION 16: OTHER INFORMATION

Key literature references and sources for data taken from supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet. Other information - The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship.

The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.



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

**1.1. Product identifier**

**Product name:** REFRIGERANT R290  
**Product code:** R290  
**Synonyms:** REFRIGERANT GRADE PROPANE

**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**

**Company name:** National Refrigerants Ltd  
4 Watling Close  
Sketchley Meadows Business Park  
Hinckley  
Leicestershire  
LE10 3EZ  
United Kingdom  
**Tel:** 01455 630790  
**Fax:** 01455 630791  
**Email:** [sds@nationalref.com](mailto:sds@nationalref.com)

**1.4. Emergency telephone number**

**Emergency tel:** Carechem24 +44 (0)1865 407333

**Section 2: Hazards identification**

**2.1. Classification of the substance or mixture**

**Classification under CLP:** Flam. Gas 1: H220; Press. Gas: H280

**Most important adverse effects:** Extremely flammable gas. Contains gas under pressure; may explode if heated.

**2.2. Label elements**

**Label elements:**

**Hazard statements:** H220: Extremely flammable gas.  
H280: Contains gas under pressure; may explode if heated.

**Hazard pictograms:** GHS02: Flame  
GHS04: Gas cylinder



**Signal words:** Danger

**Precautionary statements:** P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition

# SAFETY DATA SHEET

REFRIGERANT R290

Page: 2

sources. No smoking.

P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381: In case of leakage, eliminate all ignition sources.

P403: Store in a well-ventilated place.

P410: Protect from sunlight.

## 2.3. Other hazards

**Other hazards:** In use, may form flammable / explosive vapour-air mixture.

**PBT:** This product is not identified as a PBT/vPvB substance.

## Section 3: Composition/information on ingredients

### 3.2. Mixtures

## Section 4: First aid measures

### 4.1. Description of first aid measures

**Skin contact:** Remove all contaminated clothes and footwear immediately unless stuck to skin.

Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Do not use hot water. If frostbite has occurred call a physician.

**Eye contact:** Bathe the eye with running water for 15 minutes. Consult a doctor.

**Ingestion:** Not applicable.

**Inhalation:** Remove casualty from exposure ensuring one's own safety whilst doing so. If unconscious, check for breathing and apply artificial respiration if necessary. Consult a doctor.

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

**Skin contact:** There may be redness or whiteness of the skin in the area of exposure. Frost-bite may occur causing the affected area to become white and numb.

**Eye contact:** There may be pain and redness. Corneal burns may occur. May cause permanent damage.

**Ingestion:** Not applicable.

**Inhalation:** There may be drowsiness, slurred speech, muscular weakness, muscle twitching, tremor, blurred vision, dilated pupils and shock.

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

**Immediate / special treatment:** Not applicable.

## Section 5: Fire-fighting measures

### 5.1. Extinguishing media

**Extinguishing media:** Alcohol resistant foam. Water spray. Carbon dioxide. Dry chemical powder. Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

[cont...]

# SAFETY DATA SHEET

REFRIGERANT R290

Page: 3

## 5.2. Special hazards arising from the substance or mixture

**Exposure hazards:** Flammable. In combustion emits toxic fumes. Forms explosive air-vapour mixture.

## 5.3. Advice for fire-fighters

**Advice for fire-fighters:** Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

## Section 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions:** Refer to section 8 of SDS for personal protection details. Notify the police and fire brigade immediately. Eliminate all sources of ignition. If outside keep bystanders upwind and away from danger point.

### 6.2. Environmental precautions

**Environmental precautions:** Stop release if safe to do so. Prevent from entering sewers, basements and work pits, or any place where the accumulation can be dangerous.

### 6.3. Methods and material for containment and cleaning up

**Clean-up procedures:** Do not use equipment in clean-up procedure which may produce sparks. Material evaporates. Ventilate the area, especially low or enclosed places where heavy vapours might collect.

### 6.4. Reference to other sections

**Reference to other sections:** Refer to section 8 of SDS.

## Section 7: Handling and storage

### 7.1. Precautions for safe handling

**Handling requirements:** Smoking is forbidden. Use non-sparking tools. Ensure there is sufficient ventilation of the area. Avoid the formation or spread of mists in the air.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage conditions:** Store in a cool, well ventilated area. Keep container tightly closed. Keep away from sources of ignition. Prevent the build up of electrostatic charge in the immediate area. Ensure lighting and electrical equipment are not a source of ignition.

**Suitable packaging:** Must only be kept in original packaging.

### 7.3. Specific end use(s)

**Specific end use(s):** No data available.

## Section 8: Exposure controls/personal protection

### 8.1. Control parameters

**Workplace exposure limits:** No data available.

[cont...]

# SAFETY DATA SHEET

REFRIGERANT R290

Page: 4

## DNEL/PNEC Values

**DNEL / PNEC** No data available.

## 8.2. Exposure controls

**Engineering measures:** Ensure there is sufficient ventilation of the area. Ensure lighting and electrical equipment are not a source of ignition.

**Respiratory protection:** Respiratory protection not required.

**Hand protection:** Protective gloves.

**Eye protection:** Safety glasses with side-shields. Safety goggles. Face-shield. Ensure eye bath is to hand.

**Skin protection:** Protective clothing.

## Section 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

**State:** Liquified gas

**Colour:** Colourless

**Odour:** Characteristic odour

**Boiling point/range°C:** -42.1

**Flammability limits %: lower:** 2.2

**upper:** 9.5

**Autoflammability°C:** 470

**Vapour pressure:** 8.3 Bar @ 20oC

**Relative density:** 1.5 (Air=1)

### 9.2. Other information

**Other information:** No data available.

## Section 10: Stability and reactivity

### 10.1. Reactivity

**Reactivity:** Stable under recommended transport or storage conditions.

### 10.2. Chemical stability

**Chemical stability:** Stable under normal conditions. Stable at room temperature.

### 10.3. Possibility of hazardous reactions

**Hazardous reactions:** Hazardous reactions will not occur under normal transport or storage conditions.  
Decomposition may occur on exposure to conditions or materials listed below.

### 10.4. Conditions to avoid

**Conditions to avoid:** Heat. Hot surfaces. Sources of ignition. Flames.

### 10.5. Incompatible materials

**Materials to avoid:** Strong oxidising agents. Strong acids.

### 10.6. Hazardous decomposition products

**Haz. decomp. products:** In combustion emits toxic fumes.

[cont...]

# SAFETY DATA SHEET

REFRIGERANT R290

Page: 5

## Section 11: Toxicological information

### 11.1. Information on toxicological effects

**Toxicity values:** No data available.

### Symptoms / routes of exposure

**Skin contact:** There may be redness or whiteness of the skin in the area of exposure. Frost-bite may occur causing the affected area to become white and numb.

**Eye contact:** There may be pain and redness. Corneal burns may occur. May cause permanent damage.

**Ingestion:** Not applicable.

**Inhalation:** There may be drowsiness, slurred speech, muscular weakness, muscle twitching, tremor, blurred vision, dilated pupils and shock.

## Section 12: Ecological information

### 12.1. Toxicity

**Ecotoxicity values:** No data available.

### 12.2. Persistence and degradability

**Persistence and degradability:** Biodegradable.

### 12.3. Bioaccumulative potential

**Bioaccumulative potential:** No bioaccumulation potential.

### 12.4. Mobility in soil

**Mobility:** Readily absorbed into soil.

### 12.5. Results of PBT and vPvB assessment

**PBT identification:** This product is not identified as a PBT/vPvB substance.

### 12.6. Other adverse effects

**Other adverse effects:** \* Ozone Depletion Potential (ODP): 0 (R11 = 1) R290: Global Warming Potential (GWP): 3 (CO<sub>2</sub>=1)

## Section 13: Disposal considerations

### 13.1. Waste treatment methods

**Disposal operations:** Product evaporates.

**Recovery operations:** Consult manufacturer or supplier for information regarding recovery and recycling of the product. If recovery is not possible, incinerate at a licensed installation.

**Waste code number:** 16 05 05

**Disposal of packaging:** Return to supplier.

**NB:** The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

[cont...]

# SAFETY DATA SHEET

REFRIGERANT R290

Page: 6

## Section 14: Transport information

### 14.1. UN number

UN number: UN1978

### 14.2. UN proper shipping name

Shipping name: PROPANE

### 14.3. Transport hazard class(es)

Transport class: 2

### 14.4. Packing group

### 14.5. Environmental hazards

Environmentally hazardous: No

Marine pollutant: No

### 14.6. Special precautions for user

Special precautions: No special precautions.

Tunnel code: B/D

Transport category: 2

## Section 15: Regulatory information

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

Specific regulations: Not applicable.

### 15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

## Section 16: Other information

### Other information

**Other information:** This safety data sheet is prepared in accordance with Commission Regulation (EU) No 2015/830.

\* indicates text in the SDS which has changed since the last revision.

**Phrases used in s.2 and s.3:** H220: Extremely flammable gas.

H280: Contains gas under pressure; may explode if heated.

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[cont...]

## **SAFETY DATA SHEET**

REFRIGERANT R290

**Page: 7**

and the information referred to herein are beyond the control of National Refrigerants Ltd. National Refrigerants expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.

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

### 1.1 Product identifier

Product Name CoolFlow B Inhibitor and Biocide

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

Identified uses Combined corrosion inhibitor and biocide

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 Applied Thermal Control Limited  
39 Hayhill Industrial  
Barrow upon Soar  
Leicestershire  
LE12 8LD  
+44 (0) 1530 839 998

1.4 Opening Hours Monday-Thursday - 08:00 - 17:00 Friday – 08:00 – 14:00

## 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 Skin Sens. 1A H317  
Environment Not classified as an environmental hazard

### 2.2 Label elements

EC No.  
N/A

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

The product is labelled according to CLP regulations  
Pictograms



#### Signal Word

Danger



Applied Thermal Control Ltd  
39 Hayhill Industrial Estate  
Barrow upon Soar, Leicestershire  
LE12 8LD, United Kingdom



#### **Hazard statements**

H317 - May cause an allergic skin reaction

#### **Precuatory statements**

P280 - Wear protective gloves, eye and face protection

P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

#### **2.3 Other hazards**

Other hazards have not been identified for this product Page.

### **Section 3: Composition/information on ingredients**

#### **3.2 Mixtures**

##### **Component - Methyl-1H-benzotriazole**

Concentration	3%
EC No.	249-596-6
CAS No.	29385-43-1
Reach registration No.	N/A

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

Acute Tox. 4 - H302

Aquatic Chronic 2 - H411

##### **Component - 5-chloro-2-methyl-4-iso-thiazolin-3-one & 2-methyl-2H-isothiazol-3-one (3:1)**

Concentration	0.1%
EC No.	611-341-5
CAS No.	55965-84-9
Reach registration No.	N/A

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

Skin Sens. 1A - H317

### **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 comfortable for	Move the affected person to fresh air at once. Keep warm in a position 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 position	Move the affected person to fresh air and keep warm and at rest in a comfortable for breathing. Rinse mouth thoroughly with water. Get medical attention if any discomfort continues.
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 product.	The following symptoms are listed in case of exposure to the 100% neat product.
Inhalation tract.	Inhalation of vapours may cause mild irritation of the upper respiratory tract.
Ingestion	May cause discomfort to the stomach if swallowed.
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**

No specific recommendations given, but first aid may still be required in case of accidental exposure, inhalation or ingestion of this chemical.

If in doubt, get medical attention promptly and present a copy of this Safety Data Sheet.

**Notes for the doctor**

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

Treat symptomatically.

**Section 5: Firefighting measures**

**5.1 Extinguishing media**

This product is itself not flammable. Use suitable fire-extinguishing media for the surrounding fire.

**5.2 Special hazards arising from the substance or mixture**

Specific Hazards carbon When heated and in the case of a fire, harmful vapours/gases (such as monoxide and carbon dioxide) may be formed.

Unusual fire and explosion hazards No unusual fire/explosion hazards known - product not flammable.

**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 Wear positive-pressure self-contained breathing apparatus (SCBA) and full Fire fighters protective clothing.

## Section 6: Procedure for unwanted emissions

### 6.1 Personal precautions, protective equipment and emergency procedures

#### Personal precautions

In the case of inadequate ventilation, use respiratory protection.  
Take care with spillages as surfaces may become slippery.

#### 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.  
This product contains a substance that is classified as hazardous to aquatic environment. Whilst this product is not classified as hazardous to the aquatic environment it is advised that extra care is taken to avoid spillage/runoff that may enter drains, sewers or watercourses.  
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 clean up

Absorb spillage with inert, damp, non-combustible material, then flush the contaminated area with water.  
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.

## 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.

## Section 8: Exposure controls / Personal protection

### 8.1 Control parameters

Name	STD	TWA-8 Hrs	STEL-15 Min
Methyl-1H-benzotriazole	WEL	Not available	Not available

#### DNEL

No DNEL data available.

#### PNEC

No PNEC data available.

Name	STD	TWA-8 Hrs	STEL-15
5-chloro-2-methyl-4-iso-thiazolin-3-one & 2-methyl-2H-isothiazol-3-one (3:1) Min available	WEL	Not available	Not available

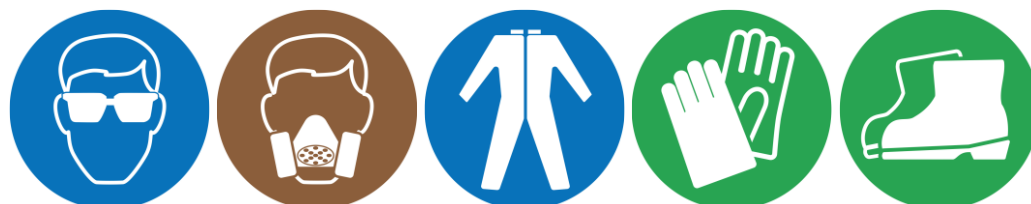
#### DNEL

No DNEL data available

#### PNEC

No PNEC data available

### 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, but contains a substance classified as hazardous to environment. Avoid spillages/runoff entering drains, sewers and watercourses.

## Section 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance	Pink liquid
Odour	Faint
Odour Threshold	Not applicable
pH	8.0 - 9.5
Melting point / Pour point	No test data available
Initial boiling point	No test data available
Flash point	Not applicable - product contains no flammable components
Evaporation Rate	No test data available
Flammability	Not applicable - product contains no flammable components
Flammability / explosion limits	No test data available
Vapour pressure	No test data available
Vapour density (air = 1)	No test data available
Relative density of the mixture	1.00 - 1.08
Solubility	Soluble in water
Partition coefficient: n-octanol / water	No test data available
Auto-ignition temperature	Not applicable - product contains no flammable components
Decomposition temperature	No test data available
Viscosity	No test data available
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.

## 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.

### 10.3 Possibility of hazardous reactions

There are no known hazardous reactions associated with this product.

### 10.4 Conditions to avoid

Avoid excessive heat for prolonged periods of time.

### 10.5 Incompatible materials

Strong acids, strong alkalis and strong oxidising agents.

### 10.6 Hazardous decomposition products

Thermal decomposition products include oxides of carbon and nitrogen. Potentially hazardous products released due to fire are listed in Section 5.2 of this Safety Data Sheet.



## Section 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

No toxicity testing has been carried out on this product. The hazard classification Skin Sens. 1A - H317 was determined via calculation

Skin corrosion/ irritation	This product is not classified as corrosive/irritating to the skin
Serious eye damage/ irritation	This product is not classified as damaging/irritating to the eyes
Respiratory/ skin sensitisation	May cause allergic skin reaction/sensitisation
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	Ingestion of this product may cause discomfort to the stomach if swallowed.
Skin contact	Prolonged and repeated contact may cause mild irritation of the skin.
Eye contact	Direct eye contact may cause reddening of the eyes.

## Section 12: Ecological information

#### Ecotoxicity

The product is not classified as hazardous to the environment.

#### 12.1 Toxicity

No available toxicity data for this product.

#### 12.2 Persistence and degradability

This product is more than 80% biodegradable

#### 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.

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### 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.

### 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.

### 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.



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## Section 16: Other information

Issued by Thermal Exchange Ltd  
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Approved by Graham Wade  
Revision Comments Review in line with CLP regulation



### Hazard statements in full

The following hazard statements are the hazard statements 'in full' for the components of this mixture. They are not the hazard statements associated with the final classification of this product.

H302 - Harmful if swallowed  
H411 - Toxic to aquatic life with long-lasting effects  
H317 - May cause an allergic skin reaction

### 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, Bioaccumulative & Toxic  
PNEC: Predicted No Effect Concentration  
REACH: Registration, Evaluation, Authorisation & restrictions of Chemicals  
SDS: Safety Data Sheet  
vPvB: Very Persistent and Very Bioaccumulative  
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.

