

L4031A,C Pool Heater Aquastat® Controller

PRODUCT DATA



FEATURES

- Pool control regulates pool water temperature.
- L4031A pool side control is ambient-temperature compensated so changes in air temperature do not affect water temperature.
- High limit provides shutdown protection to prevent boiler overheating.
- L4031A provides automatic high limit reset.
- L4031C requires manual high limit reset.
- Each limit control has its own remote-bulb sensing element and snap switch for system control.

GENERAL

The L4031A,C Pool Heater Aquastat® units are designed to control pool water temperatures and provide high limit boiler control.

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SPECIFICATIONS

IMPORTANT

The specifications given in this publication do not include normal manufacturing tolerances. Therefore, this unit may not exactly match the listed specifications. Also, this product is tested and calibrated under closely controlled conditions, and some minor differences in performance can be expected if those conditions are changed.

Models:

L4031A Pool Heater Aquastat® Controller controls pool water temperature and provides automatic reset high limit boiler control.

L4031C Pool Heater Aquastat® Controller controls pool water temperature and provides manual reset high limit boiler control.

High Limit

Range:

L4031A: 100°F to 240°F (38°C to 116°C) (each division represents 5°F degrees).

L4031C: 110°F to 290°F (43°C to 143°C) (each division represents 5°F degrees).

Differential:

L4031A: Fixed 5°F (3°C).

L4031C: Manual reset.

Electrical Rating (A):

	120 Vac	240 Vac
Full Load	8.0	5.1
Locked Rotor	48.0	30.6
Powerpile® (millivoltage) is 0.25A at 0.25 to 12 Vdc.		

Pool Control

Range:

L4031A: 40°F to 180°F (4°C to 82°C) (each division represents 5°F degrees).

L4031C: 100°F to 240°F (40°C to 116°C) (each division represents 5°F degrees).

Differential:

L4031A: Fixed 2°F (1°C) or 5°F (3°C). When 5°F (3°C), the electrical rating is the High Limit Electrical Rating.

L4031C: Fixed 5°F (3°C).

Electrical Rating:

L4031A:

Pilot Duty: 125 VA at 120 and 240 Vac.

Powerpile® (millivoltage): 0.25A at 0.25 to 12 Vdc.

L4031C: Same as high limit.

Bulb Mounting:

For list of compression fittings and immersion wells, refer to form 68-0040, Wells and Fittings for Temperature Controllers. Order separately.

Length of Capillary:

Standard, each 66 in. (1676 mm).

Case Dimensions:

See Fig. 1.

Switch Action:

Each control opens on a temperature rise.

Control Point Setting:

Visible scale that can be set with an external screwdriver adjustment.

Finish:

Gray.

Mounting Means:

Three holes in back of case.

Wiring Knockouts:

Four, for 1/2 in. conduit.

Approvals:

Underwriters Laboratories Inc. Component Recognized:

File Number M466, Guide Number MBPR2.

American Gas Association Design Certified: Report 23-11B (L4031A only).

Canadian Standards Association Certified: File Number LR1620, Guide Number 400-E-O (L4031A only).

ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® Wholesaler or your distributor, refer to the Tradeline® Catalog or price sheets for complete ordering number, or specify—

1. Order number.
2. Compression fittings or immersion wells, if desired.
3. Optional specifications, if desired.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Honeywell Residential Sales Office (check the white pages of your phone directory).
2. Residential Division Customer Relations
Honeywell, 1885 Douglas Drive North
Minneapolis, Minnesota 55422-4386

In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Scarborough, Ontario M1V 4Z9. International Sales and Service offices in all principal cities of the world.

Optional Specifications:

L4031A:

- Pool control dial marked WARMER-COOLER.
- High limit capillary exiting from top or bottom of case.
- Pool control range: 53°F to 107°F (12°C to 42°C), 100°F to 240°F (38°C to 116°C).
- Factory-set pool control limits set at 115°F, 180°F, and 200°F (46°C, 82°C, and 93°C).
- 5°F (3°C) differential on pool control.
- Adjustable differential on high limit control.
- Factory high limit stops set at 140°F, 145°F, 180°F, 195°F, 200°F, and 210°F (60°C, 63°C, 82°C, 91°C, 93°C, and 99°C).
- Capillary lengths available at 16-1/2 (high limit only), 18, 30 (pool control only), 33, 40, and 96 in. (419, 457, 762, 838, 1016, and 2438 mm).
- Case marked "Tankstat."
- No openings in cover.
- Less dial stops on pool control or both sides.
- No opening over high limit dial.
- With adjusting knob on pool control; less jumper.

L4031C:

- Factory high limit stop set at 250°F (121°C).

NOTE: Not all combinations of options are available. For information, contact your Honeywell Sales Representative or TRADELINE® Dealer.

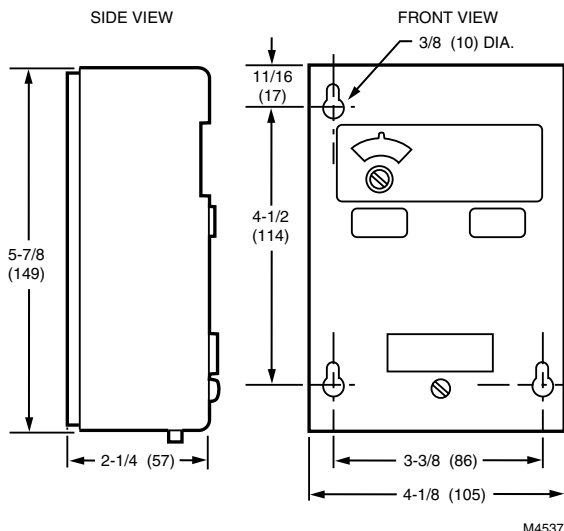


Fig. 1. Dimensions of L4031 in in. (mm).

INSTALLATION

⚠ WARNING

CAN CAUSE PROPERTY DAMAGE, SEVERE INJURY OR DEATH.

This product is intended for use only in systems with a pressure relief valve.

When Installing this Product...

- 1 Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
- 2 Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
- 3 Installer must be a trained, experienced service technician.
- 4 After installation is complete, check out product operation as provided in these instructions.

⚠ CAUTION

Disconnect power supply before beginning installation to prevent electrical shock or equipment damage.

The L4031 can be mounted either vertically or horizontally on a wall or panel, or directly on a tank. This device can be installed with the case and bulbs as far apart as the tubing permits. In all cases, the equipment manufacturer directions should be followed, if available. If not, follow the general instructions in the Location section.

Location

1. Locate the high limit bulb in the hot water outlet header of the heater. Locate the pool control bulb in the return water header of the heater.
2. Uncoil no more tubing than needed. Sharp or repeated bending of the tubing can cause damage.
3. If the tubing is subjected to vibration, protect it against wear when it comes in contact with another surface.

Mounting

1. Remove the cover by loosening the cover screw on the lower front of the controller.
2. Fasten the case to a convenient wall or panel with screws through the three mounting holes in the back of the case.
3. Replace cover.

To Install Remote Bulb (Order Fittings or Wells Separately)

NOTE: Bulb must be bottomed in well for correct response.

Using Bulb Compression Fitting (Fig. 2)

1. Screw the fitting into boiler or pipe tapping.
2. Slide sealing washer onto bulb.
3. Insert bulb into boiler fitting until bulb bottoms.
4. Slide split sleeve into fitting.
5. Place clamps A and B on assembly so sleeve is drawn into fitting when screws are tightened.

NOTE: Make sure that nub on clamp A engages space between sleeve and clamp.

6. Tighten clamp screws evenly.

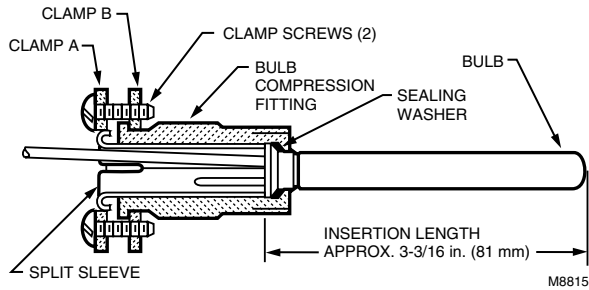
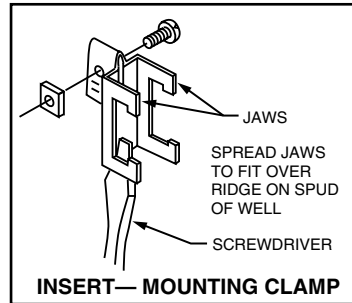


Fig. 2. 104486 Bulb compression fitting.



Using Capillary Compression Fitting (Fig. 3)

1. Screw fitting into boiler or pipe tapping.
2. Place packing nut on tubing.
3. Slide bulb completely through fitting.
4. Place composition disk and four slotted brass washers on tubing in the order shown in Fig. 3. Turn brass washers so that slots are 180 degrees apart.
5. Slide seal assembly into fitting and tighten packing nut.

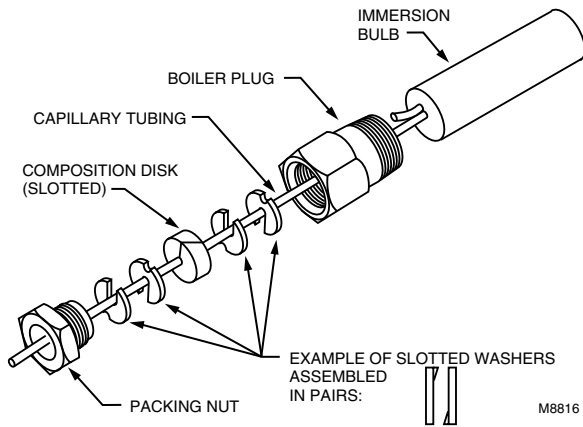


Fig. 3. 104484 Capillary compression fitting.

Using Immersion Well (Fig. 4)

1. Screw the well into the boiler or pipe tapping.
2. Insert the bulb into the well, pushing the tubing until the bulb bottoms in the well.
3. Attach the retainer clamp to the end of the well spud. Loosen the draw nut and spread the jaws of the clamp with a screwdriver if necessary. See Fig. 4.
4. With the retainer clamp attached to a well spud (be sure jaws of clamp hook over the ridge at the end of the spud, as shown at point A), adjust tubing to fit through retainer clamp groove, as shown at point B.
5. Tighten draw nut so retainer clamp is firmly attached to well spud and tubing is held securely in place.

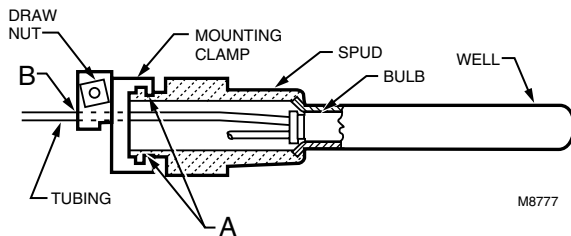
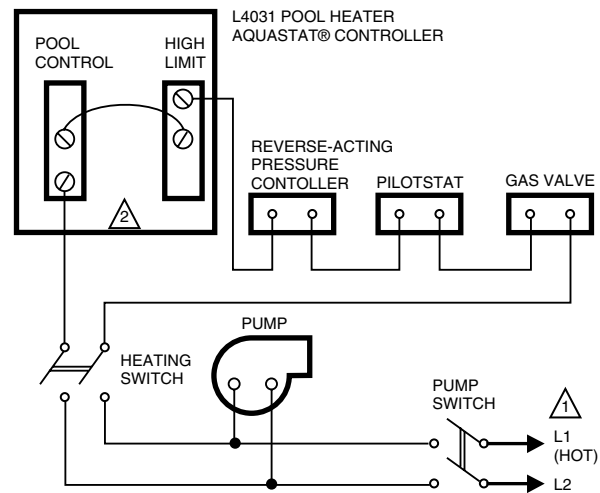


Fig. 4. Immersion well fitting.

Wiring

All wiring must comply with local codes and ordinances.

In all installations, follow the equipment manufacturer instructions. If not available, use hookups in Figs. 5, and 6.



- ⚠ POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- ⚠ WHEN HIGH LIMIT AND POOL CONTROL ARE CONNECTED IN SERIES, CURRENT DRAW OF CIRCUIT MUST NOT EXCEED ELECTRICAL RATING OF POOL CONTROL.

Fig. 5. Typical L4031 connection providing pool temperature control and high limit protection.

⚠ CAUTION

Do not secure draw nut so tightly that retainer clamp could collapse tubing

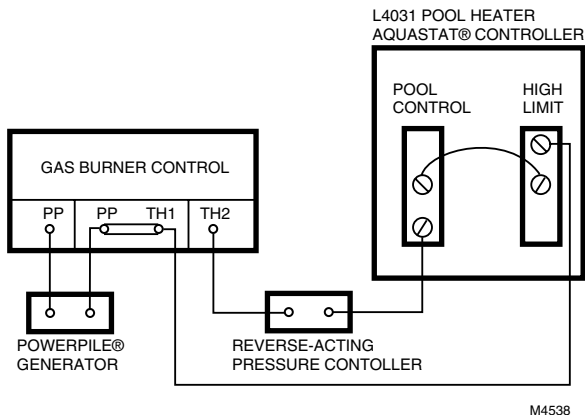


Fig. 6. Typical L4031 connection in a self-generating gas system.

SETTING AND CHECKOUT

Setting

To set the control point of each control, insert a screwdriver in the slotted head visible through the cover, and turn the dial of each control to the desired setting (Fig. 7).

Because systems differ, the correct setting for one system may not apply to another. In all cases, the equipment manufacturer recommendations for setting should be followed.

Checkout

⚠ WARNING

CAN CAUSE PROPERTY DAMAGE, SEVERE INJURY OR DEATH.

This product is intended for use only in systems with a pressure relieve valve.

Always conduct a thorough checkout when the installation is complete. Make sure the controller was installed and adjusted properly by putting it into operation and observing at least one complete cycle. Further adjustment can then be made to provide for more exact requirements.

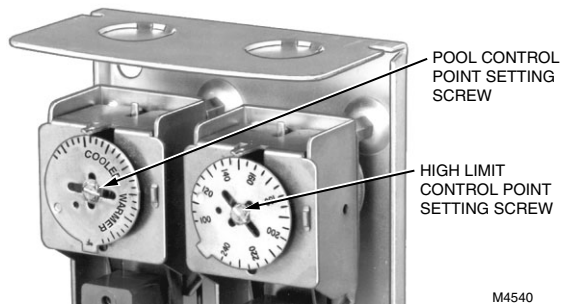



Fig. 7. Internal closeup view of L4031A pool heater Aquastat® Controller setting screws.

MATERIAL SAFETY DATA SHEET (MSDS)					
ISSUED: Dec 2 1986		REVISED: Jan 15 1992		DS 90 21	
SECTION I			EMERGENCY TELEPHONE NO.		
TRADE NAME (if None, Put Chemical) Heat Conductive Compound			1-888-809-3787		
CHEMICAL NAME AND SYNONYMS NA					
MANUFACTURER'S NAME Honeywell, Inc.					
ADDRESS (Number, Street City, State, Zip Code) 1985 Douglas Drive North Minneapolis MN 55422					
SECTION II - HAZARDOUS INGREDIENTS			%	TLV	PEL
Petroleum hydrocarbon 0000A-06-7			60-70	NE	NE
Barium, acetate tallow fatty acids complexes (*) 68201-19-4			5-10	NE	NE
Aluminum, as Al, Pyro Powders A7429-90-5			25-30	5	5 mg/m3
Stearic Acid 00057-11-4			1-5	NE	NE
Part No. 120650 (0.5 oz. tube); Part No. 107408 (4 oz. can); Part No. 197007 (5 gal. container); M.S. 1699. Specific chemical identity and C.A.S. number withheld as trade secret pursuant to 29 CFR 1910.1200 (i). HMIS RATING: H=0, F=1, R=0, PPE=Sec. VII					
(*) SARA 313 Reportable; (C) Ceiling Value; (S) Skin Notation; CAS numbers prefaced by the letters A-G refer to different forms of a compound for TLV and PEL purposes; Numbers beginning with 0000A are PACE ID numbers, not valid CAS numbers.					
SECTION III - PHYSICAL DATA					
BOILING POINT (°F)		UN	SPECIFIC GRAVITY (Water = 1)		UN
VAPOR PRESSURE (MM Hg.)		NA	PERCENT VOLATILE BY VOLUME		NA
VAPOR DENSITY (AIR = 1)		NA	pH		NA
SOLUBILITY IN WATER		Neglible	EVAPORATION RATE		NA
APPEARANCE AND ODOR Aluminum color, semi-solid material; pleasant odor.					
SECTION IV - FIRE AND EXPLOSION HAZARD DATA					
FLASH POINT (Method used) 450 F (COC)		FLAMMABLE LIMITS % by Vol.		LEL UN	UEL UN
EXTINGUISHING MEDIA CO2, dry chemical or foam.					
SPECIAL FIREFIGHTING PROCEDURES None. As in all fire situations, firefighters should wear SCBA.					
UNUSUAL FIRE AND EXPLOSION HAZARDS None.					
ADDITIONAL INFORMATION NA					

Prepared by PACE, Incorporated, Minneapolis, MN

NA - Not Applicable NE - Not Established UN - Unavailable

PACE MBH039

SECTION V - HEALTH HAZARD INFORMATION	
ACUTE EFFECTS/SYMPTOMS No data has been found regarding acute exposures to this material.	
CHRONIC EFFECTS/SYMPTOMS Prolonged and/or repeated contact may cause skin, eye, and mucous membrane irritation. These potential effects are greatly minimized if good personal hygiene practices are used. No irritation has been noted in all the years of production and packaging.	
CARCINOGENICITY NTP yes <input type="checkbox"/> no <input checked="" type="checkbox"/> IARC yes <input type="checkbox"/> no <input checked="" type="checkbox"/> OSHA yes <input type="checkbox"/> no <input checked="" type="checkbox"/> OTHER NA	
FIRST AID	
EYES	Immediately flush eyes with water for 15 minutes. Obtain medical attention if irritation persists.
SKIN	Remove excess with cloth or paper. Wash with soap and water. Obtain medical attention if irritation develops or continues.
INHALATION	Inhalation is unlikely to be a route of exposure. However if this does occur, remove victim to fresh air and treat symptomatically.
INGESTION	Contact local poison control center or physician IMMEDIATELY.
SECTION VI - REACTIVITY DATA	
STABILITY	Stable.
INCOMPATIBILITY	Strong oxidizing agents and halogens.
DECOMPOSITION	Carbon dioxide, carbon monoxide, oxides of barium.
POLYMERIZATION	Will not occur.
SECTION VII - SPILL OR LEAK PROCEDURES	
PROCEDURES Use absorbant material to clean up spills. Place in appropriate containers for proper disposal.	
WASTE DISPOSAL METHOD Dispose of in accordance with Local, State and Federal regulations.	
SECTION VIII - SPECIAL PROTECTION INFORMATION	
RESPIRATORY	None.
EYEWEAR	Not normally required. However, use chemical safety goggles or faceshield if potential for eye contact exists, especially if material is heated.
CLOTHING/ GLOVES	Not normally required. However, protective clothing and gloves are recommended because material is difficult to remove from skin and clothing.
VENTILATION	No special ventilation is required when working with this product.
SECTION IX - ADDITIONAL INFORMATION	
This product is not hazardous according to DOT criteria. Keep containers closed until ready for use. Do not store near open flame or heat.	
APPROVAL 	DATE <u>2 13 1992</u>
David E. Downs, CIH, CSP	Manager, Industrial Hygiene
The information contained herein has been developed based upon current available scientific data. New information may be developed from time to time which may render the conclusions of this report obsolete. Therefore, no warranty is extended as to the applicability of this information to the user's intended purpose or for the consequences of its use or misuse.	

MBH039

Material Safety Data Sheet (MSDS)		HEALTH	0							
		FLAMMABILITY	1							
		REACTIVITY	0							
Issue Date	Revision Date	MSDS ID	PERSONAL PROTECTION							
12/02/86	03/31/95	MBH039	B							
SECTION I - MANUFACTURER AND PRODUCT INFORMATION										
Manufacturer Name: Honeywell, Inc.		Emergency Telephone Information								
Trade Name : Heat Conductive Compound		1-888-809-3787								
Chemical Name or Synonym: NA										
Mfg Address : 1985 Douglas Drive North		Use: Heat conductive material used to enhance contact and heat transfer in temperature sensor applications.								
City : Minneapolis	State : MN	Zip : 55422								
SECTION II - HAZARDOUS INGREDIENTS										
CAS Number	Chemical Name	Percent	PEL	C	S	TLV	C	S	Units	313?
00057-11-4	Stearic Acid	1-2				10			mg/m3	N
07429-90-5	Aluminum, as Al	24-34	15			10			mg/m3	Y
64742-41-2	Mineral Oil	20-26	5			5			mg/m3	N
64742-53-6	Hydrotreated Dist. Lt. Naphthenic Mineral Oil	20-26	5			5			mg/m3	N
64742-65-0	Pet. Dist., Dewaxed, Heavy Paraffin	13-23	5			5			mg/m3	N
68649-42-3	Zinc Alkyldithiophosphate	0-2							NA	Y
68815-49-6	Lithium Hydrostearate/Sebacate Complex	3-7				10			mg/m3	N
<p>CAS Numbers with letters are codes for items with no valid CAS assignments; "PEL" is OSHA Permissible Exposure Limit; "C" indicates the standard is a Ceiling value; "S" indicates the chemical has a "Skin Contact" notation; "TLV" is Threshold Limit Value; "313" indicates ingredient is reportable under SARA Title III, Section 313.</p>										
Additional Information	Part No. 120650 (0.5 oz. tube); Part No. 107408 (4 oz. can); Part No. 197007 (5 gal. container); M.S. 1699. May also contain minute amounts of lithium and molybdenum lubricant compounds.									
SECTION III - HAZARDS IDENTIFICATION										
Emergency Overview: Low toxicity and overall hazard. Excessive skin contact may cause dermatitis. Material is aluminum flake mixed with grease, which will burn but is not flammable.										
Eye Health Effects/Symptoms : None expected. Direct contact with eye will cause irritation.										
Skin Health Effects/Symptoms : Excessive contact may cause skin irritation and dermatitis.										
Inhalation Health Effects/Symptoms : None expected due to form of material.										
Ingestion Health Effects/Symptoms : None expected.										

NA- Not Applicable NE- Not Established UN- Unknown

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Heat Conductive Compound

SECTION IV - FIRST AID MEASURES	
Eyes :	Flush eyes with water for 15 minutes. Obtain medical attention if irritation persists.
Skin :	Remove excess with cloth or paper. Wash with soap and water. Obtain medical attention if irritation develops or continues.
Inhalation :	Inhalation is unlikely to be a route of exposure. However if this does occur, remove victim to fresh air and treat symptomatically.
Ingestion :	Contact local poison control center or physician IMMEDIATELY.
SECTION V - FIRE AND EXPLOSION DATA	
Flammability : N	Flammable Conditions: Will burn if exposed to flame.
Flash Point (Method) : >383 F (COC)	Autoignition Temperature: >600C
LEL : NA	UEL : NA
Extinguishing Media :	CO2, dry chemical or foam.
Special Procedures : None. As in all fire situations, firefighters should wear SCBA.	
Unusual Fire & Explosion Hazards :	None. Aluminum powder can react with water to release flammable hydrogen gas. In the form of this product, this reaction is not expected.
Hazardous Combustion Products :	Oxides of carbon
Sensitivity to Impact : None	Sensitivity to Static Electricity : None
Additional Information :	NA
SECTION VI - ACCIDENTAL RELEASE PROCEDURES	
Spill Procedures (Less than One Gallon) :	Scrape up and dispose as solid waste in accordance with state and federal regulations.
Spill Procedures (More than One Gallon) :	Not expected due to product packaging size.
SECTION VII - HANDLING AND STORAGE	
Handling and Storage Procedures:	Keep container closed until ready for use.

NA- Not Applicable NE- Not Established UN- Unknown

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Heat Conductive Compound

SECTION VIII - EXPOSURE CONTROLS/ PERSONAL PROTECTION

Ventilation :	No special ventilation is required when working with this product.
Respiratory :	None.
Eyes :	Not normally required. However, use chemical safety goggles or faceshield if potential for eye contact exists, especially if material is heated.
Clothing/Gloves :	Not normally required. However, protective clothing and gloves are recommended because material is difficult to remove from skin and clothing.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point (degrees C):	UN	Melting Point (degrees C) :	NA
Vapor Pressure (mm Hg):	NA	Percent Volatiles :	NA
Vapor Density (air = 1) :	NA	Specific Gravity :	.86
Evaporation Rate :	NA	Oxidizing Properties :	None
Solubility :	Negligible	pH :	NA
Oil/water Coefficient :	NE	Odor Threshold :	NE
Physical State, Odor and Appearance :	Aluminum color, semi-solid material; pleasant odor.		

SECTION X - STABILITY AND REACTIVITY

Stability :	Stable.
Incompatibility :	Strong oxidizing agents and halogens.
Decomposition :	Carbon dioxide, carbon monoxide
Polymerization :	Will not occur.

SECTION XI - TOXICOLOGICAL INFORMATION

Eye :	NE
Skin :	Skn-mouse: TD Lo: 386 g/kg/22W-I:ETA (for grease component); Skn-mouse: TDLo 480 g/kg/80W-I:NEO (for grease component)
Inhalation :	NE
Ingestion :	NE

NA- Not Applicable NE- Not Established UN- Unknown

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Heat Conductive Compound

SECTION XI - TOXICOLOGICAL INFORMATION (Continued)				
Sensitization : None		Irritancy : No specific data; irritant on repeated contact		
Mutagenicity : None		Teratogenicity : None		
Reproduction : None		Synergistic : None		
Conditions Aggravated By Exposure : Existing skin rash or dermatitis				
Carcinogenicity	NTP : N	IARC : N	OSHA: N	Other: NA
SECTION XII - ECOLOGICAL INFORMATION				
Ecological Information :	No specific data available; would be similar to other hydrocarbon compounds such as oil			
Chemical Fate Information :	Hydrocarbon components will biodegrade in soil; relatively persistent in water.			
SECTION XIII - DISPOSAL CONSIDERATIONS				
Waste Disposal Procedures :	Dispose of as solid waste in accordance with Local, State and Federal regulations.			
SECTION XIV - TRANSPORTATION INFORMATION				
Shipping and Labelling Info:	Not regulated by DOT			
SECTION XV - REGULATORY INFORMATION				
Other Regulatory Information :	Not regulated by DOT. SARA Title III- include in Section 311/312 inventory reports if amounts exceed 10000 pounds; not regulated under Sections 301; Aluminum compounds regulated under Section 313. Not regulated in California Prop. 65. Ingredients listed in TOSCA Inventory. Regulated by OSHA Hazard Communication (1910.1200).			
SECTION XVI - ADDITIONAL INFORMATION				
Keep containers closed until ready for use. Do not store near open flame or heat.				

The information contained herein has been developed based upon current available scientific data. New information may be developed from time to time which may render the conclusions of this report obsolete. Therefore, no warranty is extended as to the applicability of this information to the user's intended purpose or for the consequences of its use or misuse.

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Honeywell

Helping You Control Your World

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