

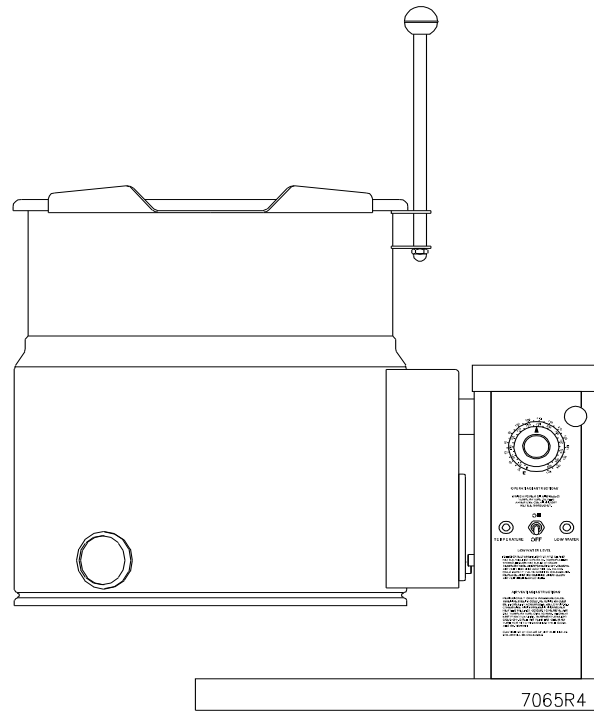


**IMPORTANT FOR FUTURE REFERENCE**  
Please complete this information and retain this manual for the life of the equipment:

Model #: \_\_\_\_\_  
Serial #: \_\_\_\_\_  
Date Purchased: \_\_\_\_\_

# INSTALLATION & OPERATION MANUAL

## Self Generating Steam Jacketed Counter Tilting Kettles EC - 6TW EC-10TW EC-12TW



### **WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

### **CROWN FOOD SERVICE EQUIPMENT**

 A Middleby Company

70 Oakdale Road, Downsview (Toronto) Ontario, Canada, M3N 1V9

Telephone: 919-762-1000 [www.crownsteamgroup.com](http://www.crownsteamgroup.com)

Printed in Canada



INSTALLATION AND OPERATION MANUAL, SELF-GENERATING STEAM JACKETED  
COUNTER TILTING KETTLES, MODELS: EC-6TW, EC-10TW, EC-12TW

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**IMPORTANT NOTES FOR INSTALLATION AND OPERATION**

This manual should be read thoroughly and all instructions followed carefully.

**Do not attempt to operate this unit in the event of a power failure.**

**Keep the appliance area free and clear from combustibles.**

**Do not obstruct the flow of combustion and ventilation air.**

**Adequate clearances must be maintained for servicing and proper operation.**



**This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.**



**WARNING: Improper installation, operation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing, operating or servicing this equipment.**

**This manual should be retained for future reference.**

# INSTALLATION AND OPERATION MANUAL, SELF-GENERATING STEAM JACKETED COUNTER TILTING KETTLES, MODELS: EC-6TW, EC-10TW, EC-12TW

## SERVICE CONNECTIONS

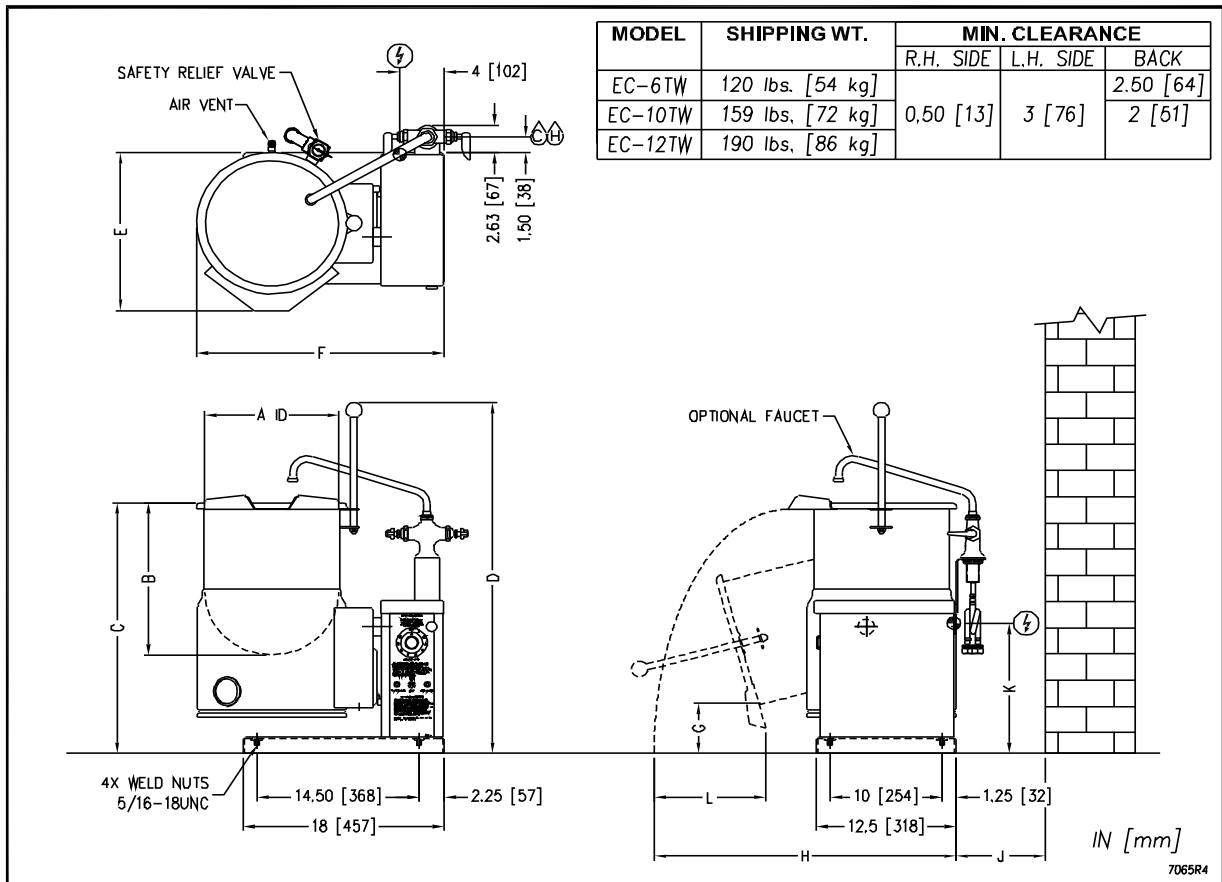
- ⚡ – ELECTRICAL CONNECTION TO BE AS SPECIFIED ON DATA PLATE
- 💧 – COLD WATER: Compression fitting for 5/8 O.D. copper tubing or 1/2 NPSM male.
- 🔥 – HOT WATER: Compression fitting for 5/8 O.D. copper tubing or 1/2 NPSM male.

### ELECTRICAL CHARACTERISTICS

MODEL	kW	PHASE	AMPS PER LINE						
			208V	220V	240V	380V	415V	480V	600V
EC-6TW	7.5	1	36.0	34.1	31.3	N/A	N/A	N/A	N/A
		3	20.8	19.7	18.1	11.4	10.4	9.0	7.2
EC-10TW/12TW	12.0	1	57.6	54.6	50.0	N/A	N/A	N/A	N/A
		3	33.3	31.5	28.9	18.3	16.7	14.5	11.5

### DIMENSIONS

MODEL	CAPACITY	UNITS	A	B	C	D	E	F	G	H	J	K	L
EC-6TW	6 gallons	Inches	12	14.38	24	33.5	15.25	22.25	4.50	27	4.25	12.38	10
	23 litres	mm	305	365	610	851	387	565	114	686	108	314	254
EC-10TW	10 gallons	Inches	16	15	26	34.88	17.25	26.25	4.62	28	6.12	14.75	12.75
	38 litres	mm	406	381	660	886	438	667	117	711	156	375	324
EC-12TW	12 gallons	Inches	17	17	28	36.88	17.25	26.25	4.12	30	156	375	12.75
	45 litres	mm	432	432	711	937	438	667	105	762	156	375	324



*As continued product improvement is a policy of Crown, specifications are subject to change without notice.*

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COUNTER TILTING KETTLES, MODELS: EC-6TW, EC-10TW, EC-12TW

## 1.0 INSTALLATION INSTRUCTIONS

Immediately after unpacking, check for possible shipping damage. If the kettle is found to be damaged, save the packaging materials and contact the carrier within 15 days of delivery.

1. The kettle must be installed in accordance with:
  1. State and/or local codes.
  2. In the USA, the National Electrical Code, ANSI/NFPA-70 (latest edition). In Canada, the Canadian Electrical Code, Part 1, CSA Standard C22.1 (latest edition).
2. Position appliance on counter allowing sufficient rear clearance from wall to tilt freely and completely without obstruction.
3. Mark four corner locations of appliance base.
4. Remove appliance from counter and locate position of 4 holes as per Figure 1. Drill four 7/16" diameter holes.
5. Apply a continuous bead of Silastic or other equivalent sealant along the complete perimeter edge of the appliance base.
6. Use 5/16-18 Hex Cap Screws with suitable flat washers to bolt down. Screw length must be 1-1/4 long plus counter top thickness.
7. Wipe off excess sealant.
8. A Control Box with power supply equivalent to Electrical Rating of appliance should be located conveniently nearby.



**WARNING: Electrical and grounding connections must comply with the applicable portions of the National Electrical Code and/or other local electrical codes.**

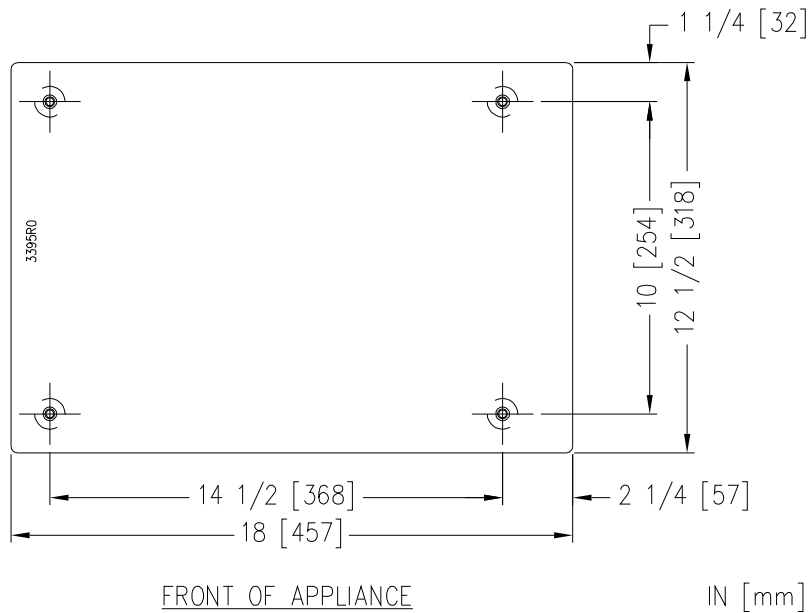
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1.0 **INSTALLATION INSTRUCTIONS** (Continued)

	<b>WARNING: Disconnect electrical power supply and place a tag at the disconnect switch to indicate you are on the circuit.</b>
---	---

9. A waterproof electrical connection from power supply to console housing must be provided.
10. Ground appliance to terminal provided inside console housing.
11. Turn power ON and check for proper operation.

**FIGURE 1**



INSTALLATION AND OPERATION MANUAL, SELF-GENERATING STEAM JACKETED  
COUNTER TILTING KETTLES, MODELS: EC-6TW, EC-10TW, EC-12TW

## **2.0 INTRODUCTION**

### **DESCRIPTION**

Models EC-6TW (6 gallon capacity) and EC-10TW (10 gallon capacity) and EC-12TW (12 gallon capacity) electrically powered, self-contained, countertop, tilting kettles. Each model has a jacket of double-wall construction forming a sealed reservoir around the lower two-thirds of the kettle. The reservoir is charged with distilled water. Kettles are equipped with a removable electric heating element and controls, including a low water cutoff device for protection of the heating element. All models are of identical construction, except for kettle size and element heating capacity.

### **BASIC FUNCTION**

Self-contained kettles operate by generating steam in the kettle reservoir. The sequence of operation is as follows:

1. Operator turns the power switch to the ON position and sets the temperature control dial to the desired temperature setting.
2. Control circuit is normally completed to the temperature controller if the following conditions exist:
  1. Water level in the kettle reservoir is adequate to prevent circuit interruption by the low water cut-off device. An activated cut-off is indicated by the amber low water light turning on, and the heating element shutoff.
  2. Kettle is in vertical position with circuit completed through the tilt interlock switch.
3. Thermostat control contacts close to energize contactor coils.
4. Power is supplied to the elements through closed power contactors.
5. As the temperature of water rises in the kettle reservoir, increase in steam pressure is indicated on the pressure gauge.
6. When the temperature of steam in the reservoir reaches the setting of the temperature control dial, the temperature controller opens to break the contacts and shuts off the heating element. On/off cycles will occur as required to maintain temperature setting.

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**3.0 OPERATION INSTRUCTIONS**

1. Ensure that the external electrical shut-off to the kettle is on.
2. Check pressure gauge for correct cold kettle reading. Reading should be in the green vacuum zone. If reading is not in the vacuum zone, follow VENTING INSTRUCTION prior to using the kettle.
3. Place power switch in ON position.
4. Preheat the kettle by placing thermostat knob at maximum and wait until TEMPERATURE light goes off.

**NOTE: Preheating should not be used when cooking milk and egg food products which adhere to hot cooking surfaces. These foods should be placed into kettle before heating is begun.**

5. Add food to be cooked into the kettle.
6. Place thermostat knob at required temperature setting with a temperature range from roughly 165°F to 289°F (74° C to 143° C, jacket temperature.)
7. When cooking is finished set thermostat knob and power switch to the OFF position.
8. Pour finished product from kettle using tilt handle. Be careful to avoid splashing.
9. Add water to kettle for cleaning purposes.
10. Wash kettle thoroughly. See CLEANING procedure.



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**3.0 OPERATION INSTRUCTIONS** (Continued)

**TILTING INSTRUCTIONS**

Your kettle has the standard “Clean Lock” feature and may not be tilted without disengaging the tilt knob located on the console at the top right. This feature locks the kettle in the upright position and also allows the operator to lock the kettle at 105 degrees for ease of cleaning. To tilt the kettle the full distance, the tilt lock knob must be disengaged from the cleaning position by pulling out the tilt lock knob and tilting the kettle forward the full distance. Follow these steps to tilt kettle:

1. Pull out the tilt knob near top right of console.
2. Using kettle tilt handle pull kettle forward to desired angle of pour or until kettle locks at 105 degrees. The tilt knob can be released after the kettle has been tilted approximately 10°.
3. Kettle will lock in position at 105 degrees and may be tilted further by pulling the tilt lock knob a second time allowing the kettle to tilt the full distance.
4. To return the kettle to the upright position, pull out the tilt lock knob and tilt the kettle upward until it locks in the upright position. The kettle should not move in either direction once in the upright position.

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#### 4.0 CLEANING INSTRUCTIONS

The kettle interior and exterior should be thoroughly washed after each use in preparation of a different food.

1. Add water and mild detergent to the kettle immediately after use.
2. Scrub kettle interior with nylon brush.

**NOTE: Never scrape the inside of the kettle with metal tools, steel scouring pads, or abrasive cleaners. Scratches will result which will spoil the kettle's general appearance and make it harder to clean and maintain a sanitary condition.**

3. Loosen food which is stuck to kettle by allowing it to soak at a low temperature setting.
4. Rinse with clear water and dry.



**WARNING: Do not hose down appliance under any condition. Failure to comply will void warranty.**

5. Wipe down exterior, rinse and dry.



**WARNING: It is NOT RECOMMENDED to use cleaning agents that are corrosive.**

Use of cleaning agents that contain chloride, acids or salts are corrosive and may cause pitting and corrosion when used over a period of time; this will reduce the life of the appliance.

Should pitting or corrosion occur this is not covered by warranty.

Follow the recommended cleaning instructions. Use a mild detergent, warm water and rinse thoroughly.

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## **5.0 TROUBLESHOOTING**

### **5.1 GENERAL MAINTENANCE**

No general maintenance is required other than adhering to the Cleaning Procedure Instructions.

### **5.2 LOW WATER LEVEL**

Proper water level must be maintained within the jacket for the kettle to operate. Depletion of water may occur from excessive opening of, or leakage through the safety relief valve.

If water is below required operating level, either initially at start-up or during use, the kettle will automatically shut off, and the LOW WATER signal light will come on.

In order for the kettle to operate, the following procedure must be followed:

1. Trip the safety relief valve lever to relieve all pressure from the kettle jacket.
2. At exterior rear of kettle jacket remove nut from Air Vent.
3. Insert funnel into Air Vent opening and slowly add the indicated amount of distilled water for:




EC-6TW	Add 50 oz. (1.5 litres)
EC-10TW and EC-12TW	Add 100 oz. (3 litres)
4. Replace Air Vent nut.
5. Follow Air Venting Instructions below.
6. Continue normal Operating Procedure of kettle.

### **5.3 VENTING INSTRUCTION**

Check pressure gauge when kettle is cold. Gauge should be in the green vacuum zone. If not, air is present which must be vented (removed) for proper heating. Use the following procedures to vent air.

1. With an empty kettle, place power switch to the ON position.
2. Set temperature control thermostat to maximum. Heat kettle until heat indicator light goes off.
3. Using a 7/16" wrench, open bleed vent one full turn for 10 seconds and then close.
4. Cool kettle. Check for proper vacuum in the green vacuum zone. If reading is not low enough, repeat entire procedure, steps 1 to 3.

### SAFETY VALVE MAINTENANCE AND TESTING

	<p><b>CAUTION!</b> Under normal operating conditions a “try lever test” should be performed every two months. Under severe service conditions, or if corrosion and/or deposits are noticed within the valve body, testing must be performed more often. A “try lever test” should also be performed at the end of any non-service period.</p>
	<p><b>CAUTION!</b> Hot, high pressure fluid may be discharged from body drain and vent during “try lever” test. Care must be taken to avoid any bodily contact.</p>
	<p><b>CAUTION!</b> High sound levels may be experienced during “try lever” test. Wear proper safety equipment and exercise extreme care! Test at, or near, half of the operating pressure by holding the test lever fully open for at least two seconds to flush the valve seat free of sediment and debris. Then release lever and permit the valve to snap shut.</p> <p>If lift lever does not activate, or there is no evidence of discharge, turn off equipment immediately and contact a licensed contractor or qualified service personnel.</p>

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**SAFETY DATA SHEET**  
DOW CHEMICAL CANADA ULC

**Product name:** DOWFROST™ HD Heat Transfer Fluid, Dyed

**Issue Date:** 01/19/2017

**Print Date:** 01/23/2017

DOW CHEMICAL CANADA ULC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

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## 1. IDENTIFICATION

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**Product name:** DOWFROST™ HD Heat Transfer Fluid, Dyed

**Recommended use of the chemical and restrictions on use**

**Identified uses:** Intended as a heat transfer fluid for closed-loop systems. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

**COMPANY IDENTIFICATION**

DOW CHEMICAL CANADA ULC  
#2400, 215 - 2ND STREET S.W.  
CALGARY AB T2P 1M4  
CANADA

**Customer Information Number:**

800-258-2436  
SDSQuestion@dow.com

**EMERGENCY TELEPHONE NUMBER**

**24-Hour Emergency Contact:** 1-888-226-8832  
**Local Emergency Contact:** 613-996-6666

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## 2. HAZARDS IDENTIFICATION

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**Hazard classification**

This product is not hazardous under the criteria of the Hazardous Products Regulation (HPR) as implemented under the Workplace Hazardous Materials Information System (WHMIS 2015).

**Other hazards**

No data available

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

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This product is a mixture.

Component	CASRN	Concentration
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# INSTALLATION AND OPERATION MANUAL, SELF-GENERATING STEAM JACKETED COUNTER TILTING KETTLES, MODELS: EC-6TW, EC-10TW, EC-12TW

**Product name: DOWFROST™ HD Heat Transfer Fluid, Dyed**

**Issue Date: 01/19/2017**

Propylene glycol	57-55-6	> 93.0 %
Water	7732-18-5	< 5.0 %
Dipotassium hydrogen phosphate	7758-11-4	< 5.0 %

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## 4. FIRST AID MEASURES

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### Description of first aid measures

**General advice:** If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air; if effects occur, consult a physician.

**Skin contact:** Wash off with plenty of water.

**Eye contact:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**Ingestion:** No emergency medical treatment necessary.

**Most important symptoms and effects, both acute and delayed:** Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

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

**Notes to physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

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## 5. FIREFIGHTING MEASURES

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**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**Unsuitable extinguishing media:** Do not use direct water stream. May spread fire.

### Special hazards arising from the substance or mixture

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

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**Product name: DOWFROST™ HD Heat Transfer Fluid, Dyed**

**Issue Date: 01/19/2017**

## Advice for firefighters

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for containment and cleaning up:** Small spills: Absorb with materials such as: Cat litter. Sawdust. Vermiculite. Zorb-all®. Collect in suitable and properly labeled containers. Large spills: Dike area to contain spill. See Section 13, Disposal Considerations, for additional information.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling: Conditions for safe storage:** Do not store in: Galvanized steel. Opened or unlabeled containers. Store in the following material(s): Carbon steel. Stainless steel. Store in original unopened container. See Section 10 for more specific information. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Propylene glycol	US WEEL	TWA	10 mg/m3
	CA ON OEL	TWAEV Total	155 mg/m3 50 ppm
	CA ON OEL	TWAEV	10 mg/m3
	CA ON OEL	TWA	155 mg/m3 50 ppm
	CA ON OEL	TWA	10 mg/m3
	CA ON OEL	TWA Vapour and aerosols	155 mg/m3 50 ppm
	CA ON OEL	TWA aerosol	10 mg/m3

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**Product name: DOWFROST™ HD Heat Transfer Fluid, Dyed**

**Issue Date: 01/19/2017**

Consult local authorities for recommended exposure limits.

## Exposure controls

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

## Individual protection measures

**Eye/face protection:** Use safety glasses (with side shields).

### Skin protection

**Hand protection:** Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Wear clean, body-covering clothing.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance

<b>Physical state</b>	Liquid.
<b>Color</b>	Yellow to green
<b>Odor</b>	Characteristic
<b>Odor Threshold</b>	No test data available
<b>pH</b>	9.5 50% <i>Literature</i>
<b>Melting point/range</b>	Not applicable to liquids
<b>Freezing point</b>	supercools
<b>Boiling point (760 mmHg)</b>	152 °C <i>Literature</i>
<b>Flash point</b>	<b>closed cup</b> 104 °C <i>Pensky-Martens Closed Cup ASTM D 93</i> Propylene glycol., (based on major component)
<b>Evaporation Rate (Butyl Acetate = 1)</b>	< 0.5 <i>Estimated.</i>
<b>Flammability (solid, gas)</b>	Not applicable to liquids
<b>Lower explosion limit</b>	2.6 % vol <i>Literature</i> Propylene glycol.
<b>Upper explosion limit</b>	12.5 % vol <i>Literature</i> Propylene glycol.



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**Product name: DOWFROST™ HD Heat Transfer Fluid, Dyed**

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<b>Vapor Pressure</b>	2.2 mmHg <i>Literature</i>
<b>Relative Vapor Density (air = 1)</b>	>1.0 <i>Literature</i>
<b>Relative Density (water = 1)</b>	1.06 at 20 °C / 20 °C <i>Literature</i>
<b>Water solubility</b>	100 % <i>Literature</i>
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Auto-ignition temperature</b>	371 °C <i>Literature</i> Propylene glycol.
<b>Decomposition temperature</b>	No test data available
<b>Kinematic Viscosity</b>	43.4 cSt at 20 °C <i>Literature</i>
<b>Explosive properties</b>	No data available
<b>Oxidizing properties</b>	No data available
<b>Molecular weight</b>	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** No data available

**Chemical stability:** Stable under recommended storage conditions. See Storage, Section 7.  
Hygroscopic

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid direct sunlight or ultraviolet sources.

**Incompatible materials:** Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Alcohols. Ethers. Organic acids.

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## 11. TOXICOLOGICAL INFORMATION

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*Toxicological information appears in this section when such data is available.*

### **Acute toxicity**

#### **Acute oral toxicity**

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

For the major component(s): Propylene glycol.  
LD50, Rat, > 20,000 mg/kg

#### **Acute dermal toxicity**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

# INSTALLATION AND OPERATION MANUAL, SELF-GENERATING STEAM JACKETED COUNTER TILTING KETTLES, MODELS: EC-6TW, EC-10TW, EC-12TW

**Product name: DOWFROST™ HD Heat Transfer Fluid, Dyed**

**Issue Date: 01/19/2017**

---

For the major component(s): Propylene glycol.  
LD50, Rabbit, > 20,000 mg/kg

### **Acute inhalation toxicity**

At room temperature, exposure to vapor is minimal due to low volatility. Mist may cause irritation of upper respiratory tract (nose and throat).

For the major component(s):  
LC50, Rat, 4 Hour, vapour, 6.15 mg/l No deaths occurred following exposure to a saturated atmosphere.

### **Skin corrosion/irritation**

Prolonged contact is essentially nonirritating to skin.  
Repeated contact may cause flaking and softening of skin.

### **Serious eye damage/eye irritation**

May cause slight temporary eye irritation.  
Corneal injury is unlikely.

### **Sensitization**

For the major component(s):  
Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:  
No relevant data found.

### **Specific Target Organ Systemic Toxicity (Single Exposure)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

### **Specific Target Organ Systemic Toxicity (Repeated Exposure)**

In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

### **Carcinogenicity**

Similar formulations did not cause cancer in laboratory animals.

### **Teratogenicity**

For the major component(s): Did not cause birth defects or any other fetal effects in laboratory animals.

### **Reproductive toxicity**

For the major component(s): In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

### **Mutagenicity**

In vitro genetic toxicity studies were negative. For the major component(s): Animal genetic toxicity studies were negative.

### **Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

# INSTALLATION AND OPERATION MANUAL, SELF-GENERATING STEAM JACKETED COUNTER TILTING KETTLES, MODELS: EC-6TW, EC-10TW, EC-12TW

**Product name: DOWFROST™ HD Heat Transfer Fluid, Dyed**

**Issue Date: 01/19/2017**

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## 12. ECOLOGICAL INFORMATION

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*Ecotoxicological information appears in this section when such data is available.*

### Toxicity

#### Propylene glycol

##### **Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).  
LC50, *Oncorhynchus mykiss* (rainbow trout), static test, 96 Hour, 40,613 mg/l, OECD Test Guideline 203

##### **Acute toxicity to aquatic invertebrates**

LC50, *Ceriodaphnia dubia* (water flea), static test, 48 Hour, 18,340 mg/l, OECD Test Guideline 202

##### **Acute toxicity to algae/aquatic plants**

ErC50, *Pseudokirchneriella subcapitata* (green algae), 96 Hour, Growth rate inhibition, 19,000 mg/l, OECD Test Guideline 201

##### **Toxicity to bacteria**

NOEC, *Pseudomonas putida*, 18 Hour, > 20,000 mg/l

##### **Chronic toxicity to aquatic invertebrates**

NOEC, *Ceriodaphnia dubia* (water flea), semi-static test, 7 d, number of offspring, 13,020 mg/l

#### Dipotassium hydrogen phosphate

##### **Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).  
LC50, *Leuciscus idus* (Golden orfe), static test, 48 Hour, > 900 mg/l, Method Not Specified.

### Persistence and degradability

#### Propylene glycol

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation may occur under anaerobic conditions (in the absence of oxygen).

10-day Window: Pass

**Biodegradation:** 81 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301F or Equivalent

10-day Window: Not applicable

**Biodegradation:** 96 %

**Exposure time:** 64 d

**Method:** OECD Test Guideline 306 or Equivalent

**Theoretical Oxygen Demand:** 1.68 mg/mg

**Chemical Oxygen Demand:** 1.53 mg/mg

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**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	69.000 %
10 d	70.000 %
20 d	86.000 %

**Photodegradation**

**Atmospheric half-life:** 10 Hour

**Method:** Estimated.

**Dipotassium hydrogen phosphate**

**Biodegradability:** Biodegradation is not applicable.

**Bioaccumulative potential**

**Propylene glycol**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** -1.07 Measured

**Bioconcentration factor (BCF):** 0.09 Estimated.

**Dipotassium hydrogen phosphate**

**Bioaccumulation:** No bioconcentration is expected because of the relatively high water solubility.

**Mobility in soil**

**Propylene glycol**

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** < 1 Estimated.

**Dipotassium hydrogen phosphate**

No relevant data found.

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### 13. DISPOSAL CONSIDERATIONS

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**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device.

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**14. TRANSPORT INFORMATION**

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**TDG**

Not regulated for transport

**Classification for SEA transport (IMO-IMDG):**

**Transport in bulk  
according to Annex I or II  
of MARPOL 73/78 and the  
IBC or IGC Code**

Not regulated for transport  
Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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**15. REGULATORY INFORMATION**

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**Canadian Domestic Substances List (DSL)**

This product contains at least one substance which is not listed on the Canadian Domestic Substances List (DSL).

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**16. OTHER INFORMATION**

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**Hazard Rating System**

**NFPA**

Health	Fire	Reactivity
0	1	0

**Revision**

Identification Number: 101199333 / A208 / Issue Date: 01/19/2017 / Version: 7.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

CA ON OEL	Canada, Ontario OELs
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TWA	8-hr Time Weighted Average
TWAEV	time-weighted average exposure value
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

## Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW CHEMICAL CANADA ULC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.