



|   |
|---|
| <b>IMPORTANT FOR FUTURE REFERENCE</b><br>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 Tilting Kettle EC-20T



Model EC-20T

### **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)

## SAFETY PRECAUTIONS

Before installing and operating this equipment, be sure everyone involved in its operation is fully trained and aware of precautions. Accidents and problems can be caused by failure to follow fundamental rules and precautions.

The following symbols, found throughout this manual, alert you to potentially dangerous conditions to the operator, service personnel, or to the equipment.



This symbol warns of immediate hazards that will result in severe injury or death.



This symbol refers to a potential hazard or unsafe practice that could result in injury or death.



This symbol refers to a potential hazard or unsafe practice that could result in injury, product damage, or property damage.



This symbol refers to information that needs special attention or must be fully understood, even though not dangerous.

## IMPORTANT NOTES FOR INSTALLATION AND OPERATION

### WARNING

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

FOR YOUR SAFETY:

Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

### 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.

### NOTICE

This product is intended for commercial use only. NOT FOR HOUSEHOLD USE.

### NOTICE

It is recommended that this manual be read thoroughly and that all instructions be followed carefully.

### NOTICE

This manual should be retained for future reference.

### NOTICE

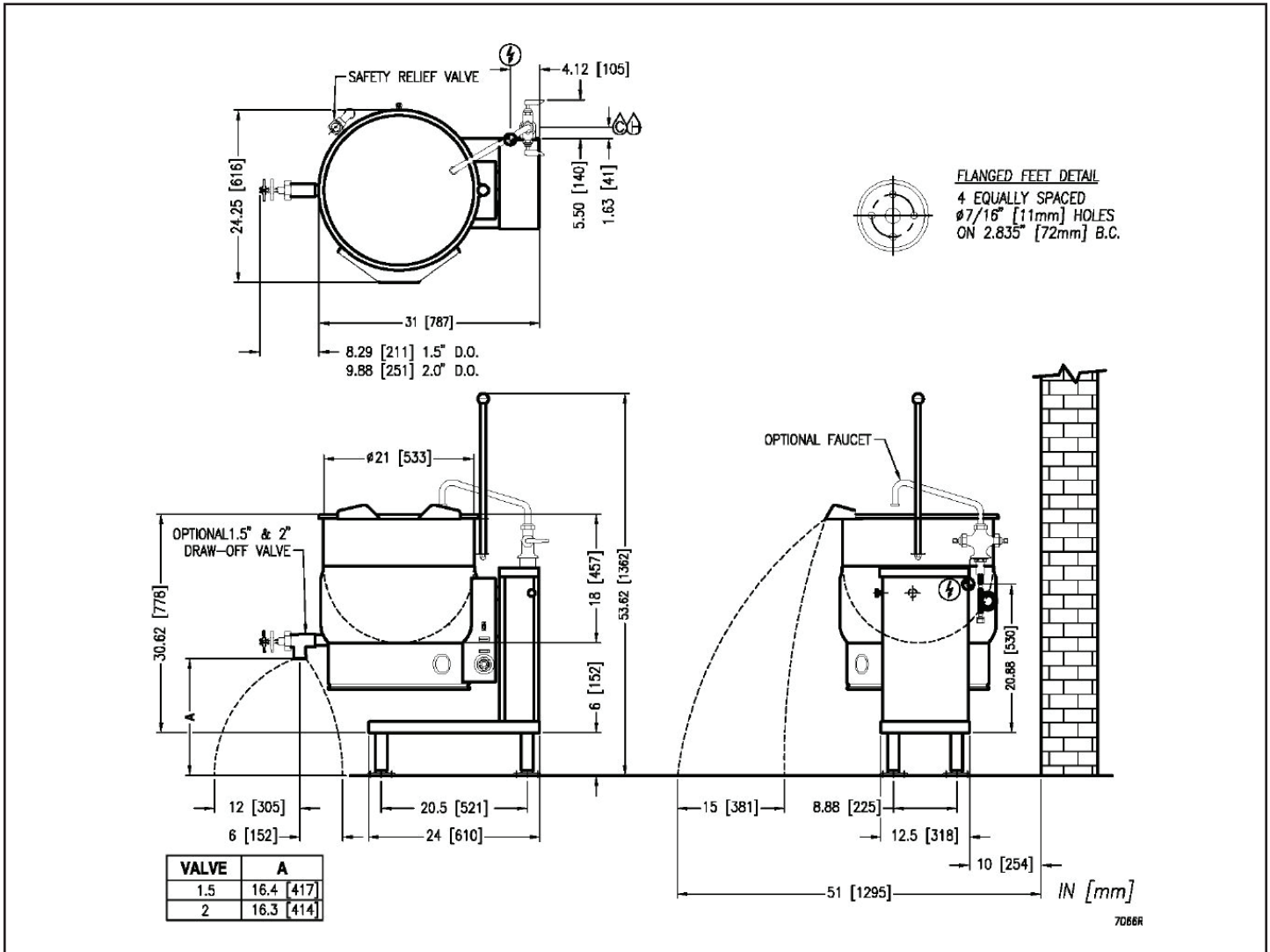
Contact the factory, the factory representative or local service company to perform maintenance and repairs.

RETAIN THIS MANUAL FOR FUTURE REFERENCE.

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# SERVICE CONNECTIONS



## SERVICE CONNECTIONS

- ⚡ - ELECTRICAL CONNECTIONS: to be specified on data plate
- Ⓒ - COLD WATER: 3/8" O.D. tubing to faucet (OPTIONAL)
- Ⓓ - HOT WATER: 3/8" O.D. tubing to faucet (OPTIONAL)

## ELECTRICAL CHARACTERISTICS AND SPECIFICATIONS

| MODEL  | CAPACITY   | PHASE | kW | AMPS PER LINE |      |      |      |      |      | Shipping Weight | Minimum Clearance    |              |               |                  |
|--------|------------|-------|----|---------------|------|------|------|------|------|-----------------|----------------------|--------------|---------------|------------------|
|        |            |       |    | 208V          | 220V | 240V | 380V | 415V | 480V |                 | 600V                 | Right Side   | Left Side     | Back             |
| EC-20T | 20 Gallons | 1     | 12 | 57.6          | 54.5 | 50.0 | -    | -    | -    | -               | 245 lbs.<br>[111 kg] | 0"<br>(0 mm) | 3"<br>(76 mm) | 7.5"<br>(184 mm) |
|        | 76 Liters  | 3     | 12 | 33.4          | 31.5 | 28.9 | 18.3 | 16.7 | 14.5 | 11.5            |                      |              |               |                  |

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

# INTRODUCTION

## DESCRIPTION

Model EC-20T (20 gallon capacity) is an electrically powered, self-contained, tilting kettle. The appliance 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 “clean lock” to hold kettle in cooking position or 105 degrees for ease of cleaning, removable electric heating element and controls, and a low water cutoff device for protection of the heating elements.

## 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 at the desired setting from 1 to 10 (90 degrees Fahrenheit to 285 degrees Fahrenheit, 32 degrees Celsius to 140 degrees Celsius, jacket temperature).
2. Control circuit is normally completed to the temperature control if the following conditions exist:
  - a) 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.
  - b) Kettle is in vertical position with circuit completed through the tilt interlock switch.
3. Thermostat control closes 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 shown on the temperature control dial, the temperature control opens to shut off the heating elements. The temperature control will cycle On/Off as required to maintain set temperature.

# INSTALLATION

## UNPACKING

### IMMEDIATELY INSPECT FOR SHIPPING DAMAGE

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

## INSTALLATION INSTRUCTIONS

1. Select a location to provide drainage directly below the pour path of the kettle. Position appliance to allow sufficient rear clearance from wall to tilt freely and completely without obstruction.
2. Mark hole locations through flanged adjustable feet. Remove kettle.
3. On hole locations marked, drill holes and insert expansion shields to accommodate 5/16" size lag bolts.
4. Reposition kettle. Level kettle by making necessary adjustments on flanged feet.
5. Bolt down kettle and seal with Silastic or other equivalent sealing compound. Sealant must be applied not only to bolt heads but also around flanges making contact with floor surface to fulfill NSF International requirements. Wipe off excess sealant immediately.
6. A control box with power supply equivalent to electrical rating of kettle should be located conveniently nearby.
7. A waterproof electrical connection from power supply to rear of control housing must be provided.
8. Ground kettle to terminal provided inside control housing.
9. Turn power ON and check for proper operation.

### **WARNING**

#### ELECTRICAL GROUNDING INSTRUCTIONS

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

### **WARNING**

Disconnect electrical power supply and place a tag at the disconnect switch to indicate you are on the circuit.

# OPERATION

## OPERATING INSTRUCTIONS

1. Ensure that the external electrical service to kettle is on.
2. Check pressure gauge for correct cold kettle reading. Reading should be in the green vacuum zone (25 - 30 In. Hg or 635 - 762 mm Hg of vacuum). If reading is not low enough, follow VENTING INSTRUCTIONS in this Section prior to using kettle.
3. Place power switch in ON position.
4. Preheat kettle by placing thermostat knob at Maximum Temperature. Wait until TEMPERATURE light goes off.
5. Add food to be cooked into kettle.
6. Place thermostat knob at required temperature setting from 1-10 coinciding with the following table:

| THERMOSTAT<br>SETTING | APPROXIMATE (JACKET) TEMPERATURE |               |
|-----------------------|----------------------------------|---------------|
|                       | 1                                | 90 Fahrenheit |
| 2                     | 118 Fahrenheit                   | 42 Celsius    |
| 3                     | 138 Fahrenheit                   | 54 Celsius    |
| 4                     | 158 Fahrenheit                   | 64 Celsius    |
| 5                     | 178 Fahrenheit                   | 76 Celsius    |
| 6                     | 200 Fahrenheit                   | 88 Celsius    |
| 7                     | 220 Fahrenheit                   | 100 Celsius   |
| 8                     | 240 Fahrenheit                   | 111 Celsius   |
| 9                     | 260 Fahrenheit                   | 122 Celsius   |
| 10                    | 280 Fahrenheit                   | 134 Celsius   |

7. When cooking is finished, place power switch in 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 INSTRUCTIONS.

## TILTING INSTRUCTIONS

Your kettle has a 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 at top right located on 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.

## VENTING INSTRUCTIONS

Check vacuum/pressure gauge when kettle is cold. Gauge should be in the green vacuum zone (25 - 30 In. Hg or 635 - 762 mm Hg of vacuum). If not, air is present which must be vented (removed) for proper heating. Use the following procedures to vent air:

1. With the kettle empty, place power switch in ON position.
2. Set temperature control thermostat to '10'. Heat kettle until heat indicator light goes off.
3. Using a 7/16" wrench, open bleed vent (rear of kettle) one full turn for 10 seconds and close.
4. Cool kettle. Check for proper vacuum in the green vacuum zone (25 - 30 In. Hg or 635 - 762 mm Hg of vacuum ). If reading is not low enough, repeat steps 1 to 3.

## ADDING WATER (LOW WATER LIGHT COMES ON)

It may be necessary to replenish water in the jacket when the low water indicator comes on. Do so as follows:

1. Unit should be completely cold and off.
2. Lift handle of pressure relief valve to release vacuum in kettle. (Relief valve is at left rear of kettle).
3. Remove air vent nut at the rear of the unit.
4. Using pure distilled water only, pour 140 fluid oz. (4L) into the opening or pour 376 fl. oz (11L) if completely empty. (A funnel will be helpful). Water will enter the kettle slowly, as air must escape through the same hole.
5. When sufficient water has been added, replace and tighten the nut. Be sure to seal threads with a pipe joint compound suitable for steam at 50 psi.
6. Vacuum must be re-established. (See Venting Instructions in this Section).

## SAFETY VALVE MAINTENANCE AND TESTING

### CAUTION

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.

### CAUTION

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.

### CAUTION

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.

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.



# CLEANING

 **WARNING**

Disconnect the power supply to the appliance before cleaning or servicing.

 **WARNING**

Never spray water into electric controls or components!

 **CAUTION**

The equipment and its parts are hot. Use care when operating, cleaning and servicing.

 **CAUTION**

Do not use cleaning agents that are corrosive.

Your kettle should be cleaned immediately after each use or when cooking a different product. Before cleaning, check that the kettle has cooled enough to touch it.

1. Rinse the inside of the kettle thoroughly and drain to remove any food particles.
2. Using a nylon brush, clean the kettle with a mild detergent and water. Never use steel wool or scouring powder as it will scratch stainless steel. Plain steel wool can leave small pieces of steel which can rust.
3. Rinse the inside of the kettle thoroughly with clean water. Tilt the kettle to allow the detergent and water solution to drain.
4. Wipe the exterior of the kettle with a clean, damp cloth.

## DRAW-OFF VALVE CLEANING

**NOTICE:** Draw-off valve has a vulcanized rubber coated stem for better sealing. Do not over tighten. This may cause the rubber to pull away from stem and permanently damage it. This is not covered under warranty.

1. Turn the large hex nut on the draw-off valve counterclockwise until it is completely disengaged from the threads. Grasp the valve knob and slowly pull out the valve stem. Wash the valve stem, disk and handle. Insert a nylon brush, wet with detergent and water, into the valve body and tangent draw-off tube. Brush vigorously.
2. Replace the valve stem assembly and turn the hex nut until snug. Rinse the kettle with clean warm water.
3. Leave the draw-off valve open when the kettle is not in use.

## WHAT TO DO IF SURFACE RUST APPEARS

Metal utensils should never be used as they will scratch the surface of the equipment and rust may begin to form. To remove surface accumulation of rust from the inadvertent use of such utensils, the following procedure may be used.

### CAUTION

Improper use of this procedure may damage your appliance!

1. Use undiluted white vinegar with a non-abrasive scouring pad (plastic) or cloth on the affected area to remove the rust stain. The appliance should not be heated and remain at room temperature during the entire cleaning process.
2. If the stain resists removal, additional exposure time with vinegar may be required, to a maximum of one hour.
3. Thoroughly wash all of the vinegar away with fresh clear water. Dry the surface completely and allow one hour before using the appliance to cook.

Following daily and period maintenance procedures will prolong the life for your equipment. Climatic conditions - salt air - may require more thorough and frequent cleaning or the life of the equipment could be adversely affected.

## STAINLESS STEEL

To remove normal dirt, grease or product residue from stainless steel, use ordinary soap and water (with or without detergent) applied with a sponge or cloth. Dry thoroughly with a clean cloth. Never use vinegar or any other corrosive cleaner.

To remove grease and food splatters or condensed vapours that have baked on the equipment, apply cleanser to a damp cloth or sponge and rub cleanser on the metal in the direction of the polishing lines. Rubbing cleanser as gently as possible in the direction of the polished lines will not mar the finish of the stainless steel. **NEVER RUB WITH A CIRCULAR MOTION.**

Soil and burn deposits which do not respond to the above procedure can usually be removed by rubbing the surface with **SCOTCH-BRITE™** scouring pads or **STAINLESS** scouring pads. **DO NOT USE ORDINARY STEEL WOOL** as any particles left on the surface will rust and further spoil the appearance of the finish. **NEVER USE A WIRE BRUSH, STEEL SCOURING PADS (EXCEPT STAINLESS), SCRAPER, FILE OR OTHER STEEL TOOLS.** Surfaces which are marred collect dirt more rapidly and become more difficult to clean. Marring also increases the possibility of corrosive attack. Refinishing may then be required.

**TO REMOVE HEAT TINT:** Darkened areas sometimes appear on stainless steel surfaces where the area has been subjected to excessive heat. These darkened areas are caused by thickening of the protective surface of the stainless steel and is not harmful. Heat tint can normally be removed by the foregoing, but tint which does not respond to this procedure calls for a vigorous scouring in the direction of the polish lines using **SCOTCH-BRITE™** scouring pads or a **STAINLESS** scouring pad in combination with a powdered cleanser. Heat tint action may be lessened by not applying or by reducing heat to equipment during slack periods.

All food contact surfaces must be thoroughly drained and flushed prior to cooking in the kettle.

**CONTROL PANEL:** The textured control panel should be cleaned with warm water and mild soap. Never use an abrasive cloth or steel wool. Never use cleaning solvents with a hydrocarbon base.

## APPENDIX 'A'


**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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|                                |           |          |
|--------------------------------|-----------|----------|
| 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.

**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.

**6. ACCIDENTAL RELEASE MEASURES**

**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.

**7. HANDLING AND STORAGE**

**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.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control parameters**

Exposure limits are listed below, if they exist.

| Component        | Regulation | Type of listing         | Value/Notation               |
|------------------|------------|-------------------------|------------------------------|
| Propylene glycol | US WEEL    | TWA                     | 10 mg/m <sup>3</sup>         |
|                  | CA ON OEL  | TWAEV Total             | 155 mg/m <sup>3</sup> 50 ppm |
|                  | CA ON OEL  | TWAEV                   | 10 mg/m <sup>3</sup>         |
|                  | CA ON OEL  | TWA                     | 155 mg/m <sup>3</sup> 50 ppm |
|                  | CA ON OEL  | TWA                     | 10 mg/m <sup>3</sup>         |
|                  | CA ON OEL  | TWA Vapour and aerosols | 155 mg/m <sup>3</sup> 50 ppm |
|                  | CA ON OEL  | TWA aerosol             | 10 mg/m <sup>3</sup>         |

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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 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><br>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.   |

|   |  |
|---|--|
| <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.

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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.



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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

**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):**

Not regulated for transport

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

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.







# EC-20T SELF-GENERATING STEAM JACKETED TILTING KETTLES



A product with the Crown name incorporates the best in durability and low maintenance. We all recognize, however, that replacement parts and occasional professional service may be necessary to extend the useful life of this appliance. When service is needed, contact a Crown Authorized Service Agency, or your dealer. To avoid confusion, always refer to the model number, serial number, and type of your appliance.



## CROWN FOOD SERVICE EQUIPMENT

 A Middleby Company

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