

Date Revised:	June 2021	Overall Task Risk Rating:	Before Controls	B	After Controls	C
Description:	Crack sealing operations on construction projects include the use of hot tar kettles fuelled by propane cylinders. Solid asphalt blocks are heated and transformed into liquid collected on asphalt cones that is then poured into cracks to seal them					
Location(s):	Construction Projects					
Associated Documents: Housekeeping WTS, Hazardous Agents WTS, Traffic Control WTS, Asphalt Paving WTS, Equipment and Machinery Operation WTS, Compressed Gas WTS						

RED FLAGS (HOLD WORK UNTIL CORRECTED):

Note:

- If you suspect any leak from the propane cylinder or any of its connections
- Failure to follow manufacturer's safety instructions and/or warnings
- Do not commence work if you are not trained

PERSONAL PROTECTIVE EQUIPMENT (CSA APPROVED)

Head Protection	Foot Protection	High-Vis Protection	Hearing Protection	Hand Protection	Eye Protection	Respiratory Protection	Skin Protection	Face Protection	Fall Protection
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note:

- Workers must wear all PPE listed in the MSDS / SDS for the specific hazardous products that they are to handle
- Additional PPE such as respiratory protection (i.e. a full face respirator) may be required depending on the task.

SAFE WORK PRACTICES (SWP)

Hot Tar Kettle General Operations:

- It is important to never operate the equipment in a closed building or confined area.
- Avoid all bodily contact with hot surfaces (Kettle body).
- The burner should never be left unattended when lit.
- Keep the proper type of fire extinguisher near the unit at all times.
- Once the equipment has been started keep hands, feet, and clothing away from all moving parts.
- Always shut down the burner and engine before attempting to change the propane cylinder.
- Perform routine maintenance as recommended by the manufacturer. Below are some common routine safety procedures that help to maintain the kettle and provide additional safety for workers. However, these are simple guidelines and the recommendations from the manufacturer should always be followed and adhered to:
 - Each day before igniting the burner and starting the engine, check all fluid levels and connections at ambient temperature.
 - Check and tighten any loose bolts and screws after every 100 hours of operation.
 - Replace any hoses that show signs of wear, fraying or splitting.
 - Check all fittings and joints for tightness and make sure that they are leak proof.

Propane Fuelled Hot Tar Kettles:

- Hot tar or bitumen road tankers or kettles are heated by liquid propane burners.
- Some of the heat generated by the burner is used to vapourize the liquid propane at the burner face.
- Most hot tar or bitumen road tankers and kettles do not have a flame safeguard system, constant supervision is required.

- If the burner flame is accidentally extinguished propane will continue to flow through the burner until the propane supply is exhausted or turned off.
- A propane burner used on a hot tar or bitumen road tanker or kettle must not have a BTU rating greater than that recommended by the manufacturer of the unit.

Before lighting the burner:

- Inspect burners, controls, regulators and hoses for defects. Replace any damaged components.
- Make sure fire extinguishers are located nearby.

When lighting a propane burner:

- To avoid build up of propane, always have your source of ignition operating and in place prior to turning on the propane to the burner.
- To light the burner, ensure that the burner control valve is in the "off" position. Then turn on the propane at the container by opening the container service valve. Hold a source of ignition at the burner and slowly open the burner valve.

If the flame goes out, act with caution by:

- Shutting off the fuel supply at the cylinder service valve or tank.
- Determining if any propane has escaped, check low lying areas for odour.
- Avoid smoking or turning on light switches if you smell propane.
- Test confined spaces with a detection device
- If escaped propane is detected or even suspected, ventilate and purge the area thoroughly before attempting to operate or re-activate any propane fuelled equipment in the area.
- If you are shutting down the propane burner for a brief period of time (ex: lunch time) it is safe to close the valve (s) at the burner and leave propane in the hose.
- However, liquid propane should never be left in the hoses if the burner is shut down for longer periods of time (ex: overnight)

If you are shutting the burner down for a longer period of time, or, if you are shutting down the burner to disconnect the hoses and move either the tank or the road tanker or kettle, you must take the following steps:

- Shut off the liquid withdrawal service valve at the container first and let the burner use up all the liquid propane in the system; then
- Shut off the burner control valves or valves after the burner flame is extinguished because of lack of fuel.

Remember:

- Leaving liquid propane in the hose when the burner is not operating can create a dangerous situation:
- If the liquid propane should accidentally be released. A worker could be sprayed with liquid propane and suffer freeze burns, or
- The liquid propane could create a large propane vapour cloud.

Propane

Propane is used widely in construction in a number of different ways and forms. Propane is used to operate many different items such as heaters & fuel for equipment. Additional training will be provided for workers that will be using propane as required by legislation.

The following guidelines should be followed when handling propane:

- Propane is heavier than air and will settle in low areas such as trenches, manholes, and sumps. Avoid using/storing tanks in low lying areas. No smoking or ignition sources are permitted when working in low lying areas (E.g., trenches, pits, basements).
- Understand the hazards associated with propane.
- Always wear proper PPE.
- Never smoke or have an open flame or source of ignition in an area where propane is located.
- Check all connections for leaks, use soapy water.
- Inspect cylinder for any obvious signs of damage.

- Cylinder valves are to be opened slowly.
- All cylinders must be secured in the upright position before being transported in any vehicle.
- Cylinders shall be kept upright unless designed for horizontal use.
- Cylinders shall be stored in a well-ventilated area away from heat.
- Only hoses and fittings approved for propane equipment/appliances shall be used.
- If you are not qualified do not make any repairs to any equipment.
- Any leaking cylinders must be moved outdoors, away from all ignition sources.
- A fire extinguisher must be available and in good working order when propane or other flammable/combustible gases or products are being used.

Compressed air

- Ensure all Pre-start Inspections are completed if required.
- Air hoses should be kept free of grease and oil to reduce the possibility of deterioration.
- Hoses should not be strung across floors or aisles where may cause workers to trip and fall.
- Hose ends/connections must be secured to prevent whipping if an accidental cut or break occurs.
- Compressed air must not be used under any circumstances to clean dirt and dust from clothing or off a person's skin.
- Goggles, face shields or other eye protection must be worn by personnel using compressed air.
- Ensure that the air pressure has been turned off and the line pressure relieved before disconnecting the hose or changing tools.
- Any hose connection must have a whip tie in place to prevent whipping.
- Ensure all workers are down wind if air being used to blow off material or equipment.
- Hoses shall be checked on a regular basis for cuts, bulges, or other damage. Ensure that defective hoses are repaired or replaced and all inspections and maintenance repairs are documented.

Path of Travel:

- Be aware of the sequence of operation and stay out of the Path of Travel of moving vehicles and equipment.

Environmental Considerations:

- Asphalt Paving cannot proceed in rainy conditions, Superintendents and Management shall monitor weather conditions.
- Be aware of heat stress related hazards while working outside in the summer season with hot asphalt.
- For more information, refer to the Hazardous Agents WTS.

Manual Material Handling:

- Using asphalt cones for crack sealing can result in a Repetitive Strain Injuries (RSI) - when possible workers should rotate between repetitive job tasks.

Traffic Protection Plan:

- Every employer on a project is required to implement a written Traffic Protection Plan for the employer's workers if they may be exposed to a hazard from vehicular traffic.
- The Gazzola Paving Traffic Protection Plan form shall be completed by the Superintendent or Foreman and the details communicated to the workers as part of the daily GAZZ Card huddle.

Traffic Control Plan:

- A Traffic Control Plan is typically prepared by the Constructor for the project and details the specific measures and devices that are to be used on the project to ensure the safe and efficient movement of traffic throughout the various phases of the project.
- Plans include the use of traffic control devices such as barriers, warning signs, longitudinal buffer areas, police, etc....
- Considerations when designing a traffic control plan: work duration, road width and traffic volume.
- All workers present must be familiar with the Traffic Control Plan for the project.

Traffic Control Person (TCP):

- TCPs shall be competent in performing traffic control duties during daylight.
- TCPs must be given written and oral instructions on the site-specific traffic plan in a language that they understand.
- TCP shall not perform any other duties while directing traffic, and shall be positioned as safely as possible to protect them from traffic.
- Remain vigilant and aware of traffic conditions.
- TCPs shall be able to provide simple directions to motorists or operators.
- Stay within the defined work areas and shall not expose themselves to the live lanes of traffic.
- Do not direct traffic for more than one lane in the same direction (two TCP's are needed to direct bi-directional traffic)
- When more than one TCP is used, provide communication devices or a procedure to allow for the safe movement of directional traffic.



CRACK SEALING OPERATIONS

Housekeeping:

- Ensure signs & traffic control devices are in good condition, visible and set up to provide clear directions for traffic
- Signs should not be obscured by objects such as vehicles, posts, trees, shrubs and other signs, etc....
- Do not block walkways with debris / equipment / obstructions forcing pedestrians to step onto the vehicle route
- Refer to Housekeeping WTS for more detail.

Inspections:

- A pre-operational safety inspection is to be completed prior to using equipment.
- Do not use defective equipment or machinery, inform your foreman / superintendent & note the defect on the Equipment Inspection Form.
- Before starting machines or equipment, ensure guards and safety devices are in place, adjusted and functioning properly.
- Ensure the cylinder test date has not expired on the propane cylinder.

Training:

- Employee Orientations (including roles, responsibilities, applicable workplace task standards, WHMIS, etc.)
- Workers exposed to, required to work with, or required to clean up / dispose of WHMIS controlled hazardous products, must be trained in WHMIS and have supplemental task specific training.
- Only trained, authorized personnel are allowed to handle and use propane cylinders.
- All workers must be trained in the use and maintenance of any PPE they are required to wear.
- Only trained, authorized personnel are allowed to operate or perform maintenance on vehicles / machinery / equipment.

Personal Protective Equipment:

- Workers on construction projects must wear, at a minimum, head, foot, and high visibility PPE. Eye protection and Neoprene Gloves are required when handling propane cylinders. Skin protection is also required to prevent any contact with liquid propane or hot asphalt.
- Wear the appropriate personal protective equipment for the job at hand (i.e. hearing protection, respirator, etc...)
- Workers must adhere to all requirements of legislated regulations when handling specific designated substances.
- Workers must wear all PPE listed in specific materials MSDS / SDS

JOB HAZARD AND RISK ANALYSIS		RISK RATING SYSTEM	
		A	B
TASK HAZARDS	RATING BEFORE CONTROLS	TASK CONTROLS	RATING AFTER CONTROLS
<ul style="list-style-type: none"> • Poor Housekeeping and Site Planning 	C	<ul style="list-style-type: none"> • Develop and post the Traffic Control Plan, specific to site conditions. • Ensure all signs and traffic control devices are in good condition and provide clear direction 	C
<ul style="list-style-type: none"> • Musculoskeletal disorders (MSD) & Repetitive Strain Injuries (RSI) 	C	<ul style="list-style-type: none"> • If an object or material appears to be awkward in shape or too heavy, it may require additional help to be handled safely • When possible workers should rotate between repetitive job tasks 	C
<ul style="list-style-type: none"> • Heat Stress 	B	<ul style="list-style-type: none"> • Drink water throughout the day (don't wait until you're thirsty) • Taking rest breaks as needed (in a cool, shady spot) • When possible, do the heaviest work at the coolest times • Use the Buddy System – watch for signs of heat related illnesses in your co-workers • If you think someone has heat stroke or heat exhaustion: call 911, inform the Foreman /Superintendent and begin First Aid 	C

<ul style="list-style-type: none"> Asphalt Burns 	B	<ul style="list-style-type: none"> All personnel involved with paving equipment and asphalt handling must wear long pants and shirts with sleeves Wear appropriate PPE (i.e. gloves) when risk of burns 	C
<ul style="list-style-type: none"> Lack of / Improper PPE 	C	<ul style="list-style-type: none"> All workers must wear high visibility PPE Additional high-visibility PPE should be worn when working in low visibility conditions e.g. reflective leg bands or high visibility coverall Ensure any PPE as mandated by the MSDS / SDS is worn while handling the respective hazardous product 	C
<ul style="list-style-type: none"> Lack of, or Improper, Training and Education 	B	<ul style="list-style-type: none"> Only trained and competent personnel are permitted to handle propane 	C
<ul style="list-style-type: none"> Struck by Equipment / Vehicles & Lack of Signaler 	B	<ul style="list-style-type: none"> Signalers are required for vehicles and equipment when the operator's view of the path of travel is obstructed Signalers are required when equipment or machinery is within the safe limits of approach to overhead powerlines 	C
<ul style="list-style-type: none"> Lack of Inspection 	C	<ul style="list-style-type: none"> A pre-operational safety inspection is to be completed Do not use defective equipment or machinery, inform your foreman / superintendent Ensure the cylinder test date has not expired on the compressed gas cylinder Ensure all propane cylinders come on site free of damage 	C

SAFE JOB PROCEDURES (SJP)

Pre-Task Commencement:

- Gather and wear the required PPE for the task.
- The Superintendent/Foreman will complete the Daily GAZZ Card and conduct a crew huddle to review with all workers the shift's tasks and any associated hazards and control strategies.
- Ensure all workers understand the GAZZ Card contents, and sign off in acknowledgement.
- Ensure controls are in place prior to commencing work so hazards are mitigated / eliminated.
- The Superintendent/Foreman will complete a Traffic Protection Form and ensure that traffic protection measures are in place in accordance with Ontario Traffic Manual Book 7 and communicate the hazards and controls to workers when workers have the potential to be endangered by traffic (refer to Traffic Control WTS for more detail)
- Determine what equipment / machinery / tools and material, are required for the completion of the task.
- Inspect all equipment / machinery / tools prior to use and document the inspections on appropriate forms when required.
- Ensure preventative maintenance activities have been completed where required, prior to using equipment / machinery / tools.
- If equipment / machinery / tools are observed to be damaged, remove it from use and notify the Foreman / Superintendent.

During Task:

- Determine the correct amount of heat (BTU/h) required.
- Read, Follow and Save the manufacturer's operating instructions. Ensure the burner meets all regulatory requirements and manufacturer's safety labels are in place, legible, and properly affixed.
- Ensure that all the equipment is assembled in accordance with all manufacturer's instructions.
- Select the correct cylinder for the burner application and ensure you use the right size wrench to connect or remove the propane cylinder.
- Start by cleaning the cracks from material and debris using compressed air.
- BEFORE LIGHTING any torch or burner, check all fittings and joints with soap and water solution or approved liquid leak detection product.
- SLOWLY OPEN THE SERVICE VALVE on the cylinder (s) once all the connections have been tightened and surroundings checked, ensure that the needle valve on the burner is closed.
- SLOWLY OPEN THE NEEDLE VALVE on the torch or burner.



CRACK SEALING OPERATIONS

9. Ignite the torch or burner head using a flint striker or built in piezo lighter if so equipped.
10. Slowly release the button on the valve until a full flame is achieved at the burner head.
11. Upon reaching the required temperature and form, collect liquid asphalt in the cones.
12. Pour liquid asphalt into the cracks for sealing.

Task Completion:

1. Shutting down propane torches and burners requires that you turn off the service valve of your propane cylinder first.
2. Turn off the needle valve on the torch or burner.
3. Ensure all tools are cleaned and stored appropriately in the designated location.
4. Implement any housekeeping or maintenance as required.
5. Ensure equipment is properly shut down, secured from movement and parked in a safe location off the travelled portion of the road where possible or clearly marked by traffic control devices to ensure safe movement of traffic.