

## INADEQUATELY MAINTAINED AND FAULTY APPLIANCES

Appliances wear out. Plastic and rubber seals will deteriorate resulting in fuel leakage. The jets in burners can become clogged, resulting in incomplete combustion.

If parts of the appliance go missing, it may not function correctly and it may be dangerous to use. For instance a missing trivet may lead to a cooking pot being placed too close to the flame. This will cause incomplete combustion, resulting in the production of poisonous carbon monoxide.

Make sure your appliances are in good working order before you leave home. If you suspect there is a problem take it to an appropriate servicing agency.

## HANDLING APPLIANCES

Do not use synthetic gloves/clothing to handle hot appliances or to refuel an appliance. Synthetic material can melt and stick to the skin when heated.

### FURTHER INFORMATION

**Energy Safety:** Tel 0508 377 463 Email [info@energysafety.govt.nz](mailto:info@energysafety.govt.nz)  
[www.energysafety.govt.nz](http://www.energysafety.govt.nz)

### THE TRAMPERS CODE:

1. PLAN YOUR TRIP THOROUGHLY
2. CHECK TRACK AND HUT CONDITIONS
3. CHECK THE WEATHER FORECAST
4. CARRY SUFFICIENT CLOTHING, EQUIPMENT, FOOD & WATER
5. CARRY A MEANS OF COMMUNICATIONS
6. BEWARE OF RIVERS - IF IN DOUBT "STAY OUT"
7. PLAN FOR EMERGENCIES

More info at [www.outdoorsafetycode.co.nz](http://www.outdoorsafetycode.co.nz)

## MSC RESOURCES

### MANUALS

- ▲ Avalanche Awareness
- ▲ Bushcraft
- ▲ Outdoor First Aid
- ▲ Abseiling
- ▲ Alpine Skills
- ▲ HUNTS
- ▲ NZ Firearm Handbook
- ▲ Outdoor safety: Risk Management

### PAMPHLETS

- ▲ Going Bush?
- ▲ Plan to Survive
- ▲ Preventing Hypothermia
- ▲ River Safety
- ▲ Outdoor Communications
- ▲ Mountain Radio Service
- ▲ Let It Breathe - Camping appliance safety
- ▲ Snowsports
- ▲ Using Avalanche Transceivers
- ▲ Firearms Safety

### DVDs

- ▲ "Lets Go Tramping" includes:
  - Do you need to cross?
  - River Safety
  - Such a stupid way to die - Hypothermia
  - It was just a tramp in the bush - Bushcraft

- Found Alive - Bush Survival

- ▲ On Target - Hunting
- ▲ Staying Alive - Mountaineering

### OTHER USEFUL RESOURCES

- ▲ MSC Survival Bag and Packliner
- ▲ Intention Forms - to record trip intentions

### WEATHER CONTACTS

- ▲ MetFax - phone 0900 77 999
- ▲ Metphone 0900 999 plus your area code
- ▲ Metvuw - [www.metvuw.com](http://www.metvuw.com)
- ▲ Metservice - [www.metservice.co.nz](http://www.metservice.co.nz)

### USEFUL CONTACTS

- ▲ MSC: [www.mountainsafety.org.nz](http://www.mountainsafety.org.nz)
- ▲ Avalanche Advisory: [www.avalanche.net.nz](http://www.avalanche.net.nz)
- ▲ National Incident Database: [www.incidentreport.org.nz](http://www.incidentreport.org.nz)
- ▲ Federated Mountain Clubs NZ: [www.fmc.org.nz](http://www.fmc.org.nz)
- ▲ NZ Land Search & Rescue: [www.landsar.org.nz](http://www.landsar.org.nz)
- ▲ Department of Conservation: [www.doc.govt.nz](http://www.doc.govt.nz)
- ▲ Outdoor Safety Code - [www.outdoorsafetycode.co.nz](http://www.outdoorsafetycode.co.nz)

# LET IT BREATHE

Visit: [www.mountainsafety.org.nz](http://www.mountainsafety.org.nz)

SHAUN BARNETT, BLACK ROBIN PHOTOGRAPHY

## CAMPING APPLIANCE SAFETY GUIDE

### BRANCH CONTACT:

NEW ZEALAND MOUNTAIN SAFETY COUNCIL  
PO Box 6027 Wellington  
Tel 04 385 7162, Fax 04 385 7366  
Email: [orders@mountainsafety.org.nz](mailto:orders@mountainsafety.org.nz)  
[www.mountainsafety.org.nz](http://www.mountainsafety.org.nz)  
[www.avalanche.net.nz](http://www.avalanche.net.nz)  
[www.incidentreport.org.nz](http://www.incidentreport.org.nz)



NEW ZEALAND MOUNTAIN SAFETY COUNCIL

## DISCOVER MORE, SAFELY. ▲



# CARBON MONOXIDE POISONING

Camping appliances need air. In New Zealand the majority of deaths associated with the use of camping appliances have been attributed to carbon monoxide (CO) poisoning. Without proper ventilation, stoves and lamps can give off poisonous carbon monoxide. A faulty appliance may also emit carbon monoxide even in well ventilated areas. Carbon monoxide is highly toxic.

While it is odourless, it is accompanied by other emissions that may produce a 'car exhaust' smell. Carbon monoxide poisoning can produce the following symptoms: headaches, nausea, flushed (red) skin, dizziness, a false sense of well being, and/or a desire to sleep. Prolonged exposure or high levels of carbon monoxide will result in collapse, unconsciousness and even death.

When hydrocarbon fuels (gas, white spirits, or solid fuels) burn they combine with oxygen to produce heat and light through a series of chemical reactions. In normal circumstances, carbon dioxide and water vapour are produced during this combustion process.



Never use in confined spaces such as small tents

However, if these reactions are interfered with in some way, then carbon monoxide may also be emitted.

If there is inadequate oxygen to sustain complete combustion due to a lack of ventilation, carbon monoxide is generated. If a pot is placed directly on the burner head rather than being offset by the metal stand (trivet), the flame is cooled and the combustion process is restricted, resulting in the production of lethal carbon monoxide.

Using a billy that is too big for the stove may also cool the flame, resulting in the production of carbon monoxide due to incomplete combustion.

If an appliance is faulty it may produce carbon monoxide even if supplied with good ventilation. In such cases it becomes extremely dangerous to use the appliance in a small enclosure such as a tent, car or a poorly ventilated caravan. The poisonous gas can build up to fatal levels as it cannot be diluted by incoming fresh air quickly enough.

## REMEMBER:

- ▲ Use appliances outside whenever possible
- ▲ Never use in confined spaces such as small tents
- ▲ If inside, make sure there's plenty of space and ventilation
- ▲ Ventilation should allow air to move across the space with openings at high and low levels
- ▲ Keep appliances in good condition
- ▲ Always follow the manufacturer's instructions
- ▲ Give your flame room to burn – it should just touch the bottom of the pot
- ▲ Do not use appliances if they are giving off a smell as this indicates leaking gas or emissions linked to carbon monoxide poisoning.
- ▲ If your appliance is malfunctioning – stop using it.

## IF A PERSON IS SUFFERING FROM CARBON MONOXIDE POISONING:

- ▲ Move them outside immediately to fresh air.
- ▲ Call for medical assistance and monitor them constantly until help arrives.
- ▲ Be prepared to start CPR if necessary.

Extreme care must be taken when evacuating a person suffering carbon monoxide poisoning to ensure the rescuer does not become another victim. Be aware that the victim may not recognise their own symptoms due to impaired judgement.

## LPG CANISTER OVERHEATING

LPG canisters contain butane, propane or a mixture of the two in liquid form. If a cooking utensil with a highly reflective surface such as the toaster pictured is used on a LPG cooker with a



fuel tank attached, then the heat radiating down can overheat the canister to the point where the canister will rupture.

When heated, the liquid gas inside the canister will start to boil which leads to an increase in pressure inside the canister. Exposure to excessive temperatures will lead to dangerous pressures that may rupture the canister. If there is any source of ignition, the escaping gas will ignite creating a large explosion.

Problems may also occur with table top cookers where the canister is inside the case of the appliance. These cookers can be misused by operating with the trivet upside down. This results in overheating of the canister and rupture as above. Using a cooking vessel that is too large or placing two cookers close together may also result in canister overheating and rupture.

## STORAGE AND DISPOSAL OF FUEL CANISTERS

When you have finished using an appliance, turn it off securely or it will continue to produce unburnt gas. Always store fuel canisters in a cool place out of direct sunlight. Canisters placed on the back window shelf of cars have ruptured!



Always change canisters on appliances outside once they have cooled down

Always change canisters on appliances outside once they have cooled down, especially when other appliances are being used inside as the canister may still contain some fuel that could be ignited. Other liquid fuelled appliances should also be refueled outside (once they have cooled down) for the same reasons.

If using a gas burner that doesn't have a resealable cylinder, you must make sure it is completely empty before detaching it. Otherwise unused gas will escape and may explode if the gas is ignited. Never dispose of empty canisters by throwing them in the fire. They may not be completely empty and will explode. Respect the outdoors; pack out what you pack in.