

PEASOUPER

TM

Operator's Manual



'DRY – ICE' EFFECT GENERATING MACHINE

Operating Instructions

The machine has been professionally built in strong high density cross-linked polythene using only the best materials and should give trouble-free use and an excellent effect if the following instructions are read carefully.

The 'Dry-Ice' Principal

'Dry-Ice' is, in fact, solid carbon dioxide (CO₂) which in this form reaches a temperature of minus 87.5C. When the dry-ice is immersed in boiling water, it evaporates quickly, turning directly into CO₂ gas without going through an intermediary liquid stage. The refraction between the air and steam loaded CO₂ gas, gives the well-known 'fog' effect.

The Generator Principal

'Dry-Ice' is loaded into the basket where, when the handle is lowered, is immersed in boiling water. Immediately the 'fog' will be produced and expelled through the nozzle at the front of the machine.

To Operate

1. Connect a standard 13 amp plug to the mains lead supplied (or a 15 amp plug which is connected with suitable fuse protection). The current consumption is 12 amps. **CAUTION – THIS MACHINE MUST BE GROUNDED.**
2. Stand the machine on a reasonably firm, level surface in the place where it will be used, take off the lid and fill up with hot or cold water to the marked water level on the side of the machine (some judgment required) this will take approximately 3 ½ Gallons – **DO NOT OVERFILL.**
3. Plug into electrical outlet.
4. While the machine is heating up (it will take 45-60 minutes to reach boiling point), raise the basket to its highest level by raising the black handle on the side of the machine and lock it in place at the highest stop.
5. When the water has reached boiling point (this will be determined after approximately 45-60 minutes by a large amount of steam coming from the front nozzle hole) the machine is now ready for use.
6. Load the basket with dry-ice; it is best to use a mug or small saucepan. The basket size has been carefully designed to give one large 'show' from each bag or block of dry-ice if filled to approximately 1-1 ½ " from the basket rim. The loading of the dry-ice should be done at the last possible moment. Due to the steamy atmosphere in the machine, it will start evaporating very slowly if put in too long beforehand.
7. Place the lid on, and secure a tight seal by turning the two arms inward on the lid.
8. When the 'fog' is required, hold the basket lever – lower handle which is held by the ratchet-stop system. **ON NO ACCOUNT MUST THIS EVER BE TAKEN OUT OR REMOVED. IF THE BASKET IS IMMERSSED COMPLETELY THERE WOULD BE A DANGEROUS PRESSURE BUILD-UP.** Slowly lower the handle (not all the way at first) and the 'fog' will be produced in thick clouds from the front nozzle. To increase the rate, lower the handle to the stop. Raising the handle sharply will immediately stop the effect, thus it is possible for an **ON/OFF/ON/OFF** type of effect if required.
9. When the fog is finished and no more is being expelled through the nozzle, and the water is still warm, another basket full may be used if required.

Otherwise it is suggested that the machine be turned off. If not required for some time or (if another full basket load is required) be allowed to re-boil. Check water level periodically, and top-up as necessary. Do not try to repeat the effect when the water is cold. This will only lead to the solid CO2 mixing with the cold water and producing a solidified mass in the basket, requiring very hot water poured onto it to disperse.

10. When the machine is to be emptied, it is advised that it is emptied into a bucket where it stands rather than carrying it to a sink, drain etc. **ON NO ACCOUNT SHOULD THE MACHINE BE MOVED WITH HOT OR BOILING WATER IN IT.**

GUIDANCE FOR USERS

GENERAL: Carbon Dioxide is produced by immersing solid CO2 into boiling water. In its natural state this gas is colorless, but suspends water vapor when emitted from the machine giving the 'fog' effect. Although carbon dioxide is an inert gas, it does not sustain life. Because the gas is heavier than air and sinks there is no problem, although care must be taken to ensure nothing is below the 'fog' level, i.e. small pets, people lying down etc. CO2 dissipates very quickly and there are no records of accidents, but it is pays to be sure. Remember also, use of the machine creates a humidifying effect, so do not use it in the vicinity of electrical equipment, power sockets, or any item that may be damaged by moisture. In any event do not use the machine in rooms smaller than 10 feet by 10 feet.

OVERFILLING: 99% of problems arise from putting too much water in the machine. There should be no water from the nozzle except from some condensation.

If too full adjust your water level accordingly. An overfilled machine can ruin parquet flooring, carpets etc. or spray boiling water over people.

DON'TS' IN USAGE

1. Overfill or boil the machine dry.
2. Tip the machine in operation – especially if you are above an audience.
3. Put solid CO2 into drinks for a "Laboratory" effect. If consumed, solid CO2 can cause severe internal injuries.
4. Use in a room less than 10' x 10'.
5. Handle solid CO2 without gloves – this can cause severe frostbite. Protect your eyes when breaking up blocks of CO2. Cover the ice with a cloth to prevent chips from flying.
6. Leave the machine in subzero temperatures when not in operation (to prevent damage to moulded shell).
7. Put dry-ice into the machine when the water is cold.

DUCTING ADAPTORS: Remember fog output will decrease in proportion to the length of the hose used. We recommend a max. of 10' although the operator should use as little as possible.

1. Make sure that the machine cannot be tipped. If water gets into the tube it will be sprayed under pressure. A "U" bend is advisable to help prevent this.
2. Try and have the end of the hose above the level of the machine.
3. Overfilling is very undesirable in any case, but particularly so when ducting is being used. The machine is capable of spraying boiling water quite far.

In general, if you are a nonprofessional and not familiar with ducting, **DON'T USE IT!**

WARNING: An overfilled machine will eject water. This will find its own level around the element housing. Continued abuse may cause power leakage to the earth circuit and in venues with an 'Earth Leakage Circuit Breaker' will shut off the mains supply.

MAINTENANCE & HINTS ON USE

1. The lid screws are heavily protected against corrosion. Keeping them lightly oiled will keep them loose and easy to use.
2. Make sure no dry-ice is on the rubber seal. This will let gas escape through the lid gaskets.
3. When you boil the machine up, leave the lid off. This prevents the lid handles from getting hot!
4. Replacing the element or repairing a broken seal:
 - a. Remove element/ replace or clean.
 - b. Renew rubber washer.
 - c. Coat shoulder of element liberally with a high quality silicone sealant, and replace.
 - d. Leave on the element side to set for 24 hours.

OPTIONAL EXTRAS:

2 ½" Ducting; 2 ½" Ducting Adaptor or Standard 4" Ducting; 4" Ducting Adaptor.

TECHNICAL INFORMATION ON SOLID CARBON DIOXIDE

The CO₂ should be collected as near as possible to the time it is required for use. If kept for any long periods uninsulated it will disperse. This is called "sublimation". If the CO₂ is required to be kept for any length of time (i.e. over the weekend) it should be stored in specially made containers, your dealer or distributor may have insulated containers sufficient to take 1-2 blocks or bags, or if more is required to be stored a container may be made from wood and insulated on top, bottom and sides with expanded polyurethane, if there is any doubt regarding construction of this, your nearest CO₂ sales office should be contacted. Your dealer/ distributor may also stock solid CO₂ but, it not look for the nearest depot. THE MORE THAT IS BOUGHT AT ONCE, THE CHEAPER IT BECOMES! IT IS EASIER TO OBTAIN AND STORE DRY-ICE THAN MOST PEOPLE IMAGINE.

SOLID CO₂

Either a solid block may be purchased or (where available) it is recommended that CO₂ in pellet form is used, this is easier to use as it requires no breaking. If a solid block is used, it must be broken up into small pieces preferably about 1" across. Below is a graph showing sublimation losses of dry-ice in relation to various methods of storage. If blocks are used, try and obtain "sliced blocks", as these can be laid on a flat surface and broken like a slab of toffee!

CAUTION

The following points must be observed:

1. Dry-ice must be stored in sealed containers; evaporating gas will lead to a dangerous pressure build-up.
2. At no time must the dry-ice be handled, or brought into contact with bare skin. Solid CO₂ may lead to skin burns and frostbite unless handled with thick gloves.

3. Do not swallow CO2 or allow to sublimate in the mouth or bare skin (i.e. practical jokes with a piece of dry-ice in tea to give a 'laboratory effect') this may lead to severe internal injuries.
4. When breaking solid blocks of dry-ice use a hide hammer and protect the eyes. If using a metal hammer, cover with a piece of cloth to prevent fragments from flying.
5. Do not use or store solid CO2 in confined spaces. Where solid CO2 is used there should be adequate low level ventilation to ensure that the excess does not collect and cause dangerous concentrations.

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