

What are Ions, and How Do They Clean the Air?

Nature cleans the air through rain, thunderstorms and sunlight.

Sunlight and thunderstorms ionise the air and activate its oxygen content.

EcoQuest Air Purifiers re-establish the active ingredients of fresh air by duplicating this natural ionisation and oxidation process. Fresh air is not just wind. Turning on a fan or air conditioning doesn't make the air fresh. Fresh air is actually alive and this is why we need a constantly renewed supply.

Filters are not enough. All filters have the same drawback, no matter how efficient they are. They only affect the air passing through them. Much of the air in a home or office is not in the airflow and therefore is completely unaffected by a filter. So, the basic problem with filters is that they do not clean all the air we breathe.

So what are ions?

Ions are atoms that carry a charge of electricity, either positive (+) or negative (-).

Ions are found naturally outdoors at typical levels of 3,000 positive and 4,000 negative ions per cubic centimetre. Indoors, there are few ions at all and the balance is mostly positive ions. By adding negative ions to an environment, positively charged (+) airborne particles will be attracted to the oppositely charged (-) particles.

Ionisation is the process of *emitting* electrical energy into the air, which then *energises* particles in the air (such as dust, pollen, smoke). The energised particle(s) will then attach to grounded objects or combine with other particles until they become too heavy to remain airborne and drop from the air by *gravitational force*.

There are two types of ionisation:

- 1) Radio Wave (RW) ionisation
- 2) Direct Current (DC) needlepoint ionisation

Radio Wave Ion Generation produces 3,000 positive to 4,000 negative ions per cubic centimetre. It is a very slow process when compared with DC needlepoint generation. Having more RW ion generators in one area does not increase the ion count. Much confusion exists when discussing how RW ion generation works. This arises because EcoQuest does not disclose exactly how the proprietary equipment operates. The EcoQuest process is not patented because to do so would require EcoQuest to disclose its methodology. This is exactly why the formula for Coca-Cola was not patented. This type of ion generator delivers 3,000 positive and 4,000 negative ions per cubic centimetre within a radius of 18-20 metres.

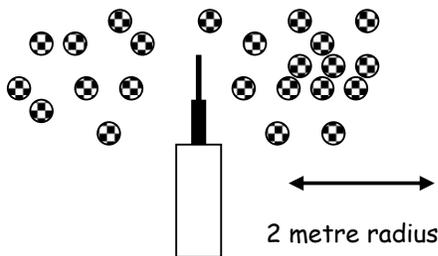
DC Needlepoint Ion Generation produces ions at the unit itself through a direct current (DC) needlepoint ion generator. These ions are totally dependent upon air movement to be circulated. While many more ions are being generated than with the RW ioniser, they must be circulated by the airflow of the environment in order to come in contact with the particulate matter in the air. The ion output from this technology is much stronger than the proprietary type ioniser. Ions emitted from a DC needlepoint ioniser are basically negated as soon as they touch a grounded object

whether it is a wall, floor, ceiling, table, etc. Subsequently, the DC ion generation technology is used in areas where extreme particulate problems exist, such as bars, nail salons, and cabinet-making workshops, with the level of effectiveness varying from application to application. Variables such as air movement, amount and type of particulate, building construction, number of grounded objects, and placement will change a unit's effectiveness.

Ion control. The normal setting of a DC ioniser is 'full negative'. This setting seems to work best in reducing particulates, as well as reducing static electricity whether it is negatively or positively charged. Trying to reduce static that is positively charged requires the use of negative ions. The opposite is true as well.

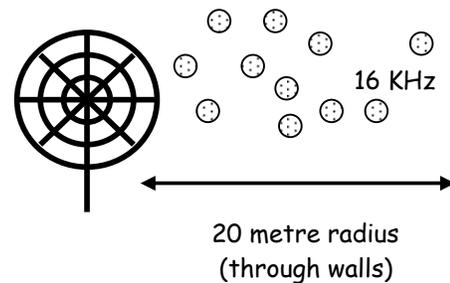
How Ionisation Works

Needlepoint Generation



*Negative ions 'cooked' off the end of the needle disperse in a 2-metre radius. Relatively **strong** ions. This is the technology of all other units.*

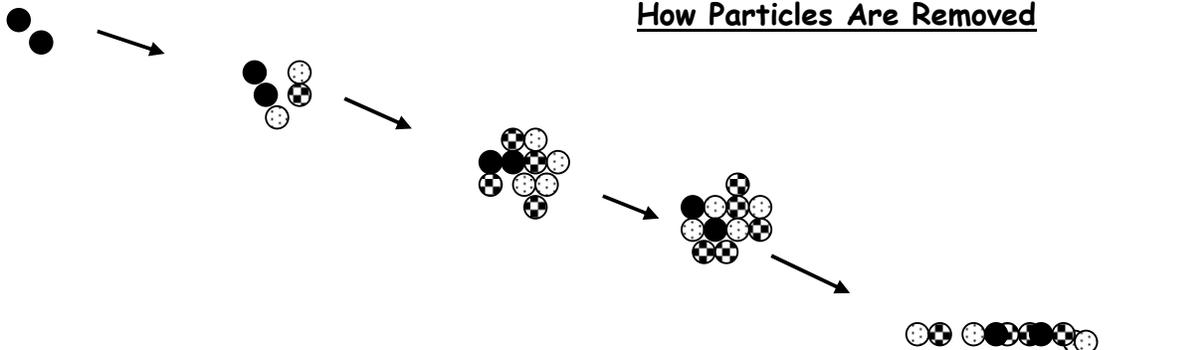
Radio Frequency Generation



*Negative and positive ions created by the radio waves within a 20-metre radius. Relatively **weaker** ions. Proprietary technology.*

Strong negative ions	Weaker pos & neg ions	Positively charged particles (pollution)
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How Particles Are Removed



As negative ions are attracted to and clump around the positively charged particles, the mass becomes heavier and falls to the floor or to anything grounded to the floor. (NB: Depending on the building type, size, age and past usage, it can take up to 3 weeks for indoor air to be optimally conditioned. You should notice some difference in air quality within the first week, but maximum potential may take longer.)