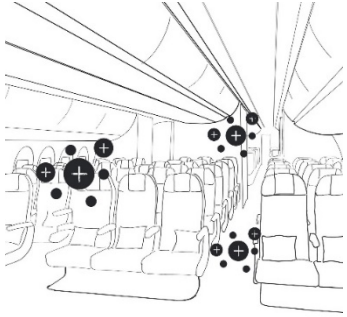


2.e/ IONIZATION

Ionization devices generate ions which can be used for air purification according to their manufacturers.



The following possible mechanisms are mentioned in the literature, often without actual evidences:

- Reduction of harmful pathogens and odorous substances by breaking hydrogen bonds of VOC (Volatile Organic Compound) molecules
- Reduction of fine and ultrafine particulate matter by agglomeration due to electrostatic effects.

Concerning ionization, the following main points have to be assessed:

- **Effectiveness**
Scientific studies proving the germicidal effect could not be retrieved by Airbus. The effectiveness is unclear due to the instability of ions generated.
- **Health**
The ionization process often generates ozone. This molecule may contribute to air purification by affecting bacteria and other pathogens, however, ozone is also harmful and can damage the lung cells even at low concentrations due to its reactivity. Ozone also has a longer lifetime than other reactive species potentially generated during the ionization process. In general any reactive species may give reason for concern when human beings are present equivalently to ozone exposure.

In order to evaluate those risks, Airbus has tested different systems that were supposed to clean the air from organic pollutants with ion generation. Formation of ozone (which may have also a detrimental effect on materials) could be confirmed.

Conclusion:

Due to the above mentioned reasons, ionization cannot be considered as a promising means for regularly disinfecting an a/c cabin.