



To:

Users or potential users of Met One model BAM-1020, E-BAM, or variant particulate monitors.

Regarding your recent questions about the beta source in the BAM-1020 particulate monitor.

Please see the attached Met One data sheet for the Carbon 14 beta source, and the attached Material Safety Data Sheet (MSDS) for Barium Carbonate material. These contain information about the complete safety of the Carbon 14 source. Here are some of the important points:

- Absolutely no radiation of any kind is emitted from the BAM-1020 instrument with the case properly assembled and closed.
- The radioactive source is Carbon 14 which emits weak beta electrons only. **No gamma, alpha, neutron, or X-rays are emitted.**
- The activity of the Carbon 14 source is only 75 microcuries maximum. This is extremely weak for a radioactive source. The Carbon 14 beta particles have only 156 KeV of maximum energy. This means that they can only penetrate about 25 centimeters of air before being completely extinguished.
- The MSDS lists that the barium carbonate C14 is not considered a radiological health hazard by external exposure, only by inhalation or ingestion. This means that the beta source material would only be harmful if you ground it up and swallowed or breathed it.
- The source is completely sealed in a metal capsule. A radiation detector would have to be placed directly next to the beta source face to measure any radiation at all.
- The BAM-1020 is in the same category as common household smoke alarms, which also usually contain a very small radioactive source.
- Many thousands of BAM-1020 and E-BAM units are installed in many different countries all over the world, including many on the grounds of schools, hospitals, and health department facilities.

Best Regards,

Dennis Hart

Product Engineer, Ambient Air Monitors
Met One Instruments, Inc.
dhart@metone.com

