AIR SAMPLE TRACKING SYSTEM AND METHOD

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application No. 61/552,264, entitled "Air Sample Tracking System and Method" and filed October 27, 2011~~, the contents of which application are incorporated herein by reference~~.

FIELD OF INVENTION

[0002] The present invention relates to devices and methods for monitoring airborne contaminants. In particular, the present invention relates to devices and methods for logging data relating to contaminant-collection subjects, e.g., agar plates, as they collect airborne contaminants, are incubated, and are subject to air sampling.

BACKGROUND OF THE INVENTION

[0003] Clean rooms found in manufacturing, research, and other facilities are typically classified into two broad categories based on the static air pressure inside the rooms relative to atmospheric pressure and/or based on the air pressure in spaces adjacent the clean rooms. A positive air pressure room is maintained at an absolute air pressure greater than atmospheric pressure, greater than the air pressure in spaces adjacent the clean room, or both. The positive air pressure in such rooms is provided by pumping filtered and/or conditioned air into the rooms and controlling the flow of air out of the rooms. The adjacent spaces, which may be manufacturing facilities or offices, are typically maintained at or close to atmospheric pressure by heating, ventilation, and air conditioning (HVAC) systems, or by providing an opening to the environment that allows the adjacent spaces to equilibrate with atmospheric pressure. Thus, air

through 250d and air sampling devices 260a through 260d is not limited by the system 200 to any particular quantity of inline flow control modules 250 or air sampling devices 260. That is, the system 200 is linearly scalable to substantially any number, n, of inline flow control modules 250a through 250n and any number, n, of air sampling devices 260a through 260n, wherein n is preferably 10. The air sampling devices 260a through 260d may be any known air sampling device for collecting a volume of air. Preferably, the system 200 comprises the same number of air sampling devices 260a through 260 as inline flow control modules 250a through 250n. It is contemplated, however, that the system 200 may include more air sampling devices 260 than inline flow control modules 250 so that one or more of the inline flow control modules 250 is coupled to more than one air sampling device 260. An example of an air sampling device suitable for use as the air sampling devices 260 is described in U.S. App. No. 13/088,641 ("the '641 Application"), entitled "System and Method for Air Sampling in Controlled Environments," filed Apr. 18, 2011, and published as U.S. Pat. App. Pub. No. 2011/0205073~~, the contents of which are incorporated herein by reference~~.

[0035] The system 200 further includes subjects 265a, 265b, 265c, and 265d, which are disposed in respective air sampling devices 260a, 260b, 260c, and 260d, at various sites within the clean room 102. The air sampling devices 260a through 260d are positioned to collect airborne contaminants in the clean room 102 using the subjects 265a through 265d. Specifically, the air sampling devices 260a through 260d are used to collect the air surrounding respective subjects 265a through 265d, i.e., to draw air over the subjects 265a through 265d during air sampling, so that contaminants in the air of the clean room 102 at sites of interest are collected by the subjects 265a through 265d. After sampling air for a desired length of time, the subjects 265a through 265d are incubated if the expected airborne contaminants are bacteria, viruses, or fungi.

[0036] The terms "collecting," "sampling," "monitoring," and the like are not used to refer just to whole air sampling devices, but also to refer to devices that process the flow of fluid in order to separate certain gases, vapors, and particulate matter in the fluid for subsequent analysis and quantification. The terms "air" and "fluid" are used interchangeably to refer to