

New Aspects of Respiratory Protection Requirements in Big Disasters and Industrial Activities in Japan

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(Abstract for presentation)

In recent history of Japan, we experienced several natural disasters of big earthquakes and volcanic eruptions which brought about serious respiratory crisis to the people of all generation involved in the disasters. Also, we are faced to the problems in industries which needs special notices to the management of conventional respiratory devices. A glance on these problems will show the needs of the new respiratory protection technology. In the Great Hanshin-Awaji Earthquake in 1995, the scattered asbestos was noticed, but effective respiratory protection was not provided to the suffering citizens including children and voluntary retrieval workers. The Great East Japan Earthquake with big Tsunami in 2011 induced the melt-down of the Fukushima Atomic Power Plants. The retrieval workers in the damaged plants were exposed to radioactive contaminants. Very low contamination of radioactive Methyl Iodide at high humidity atmosphere was a difficult target of gas filters to remove. Putting-on glasses with full-facepiece respirators caused leakage. For the workers engaged in decontamination of the polluted area around the plants, who are not used to put on respirators, effective use of particle respirators were often ignored. Recently, Japanese toxicologists reported high lung toxicity of Indium Compounds and Japanese Government issued the exposure limit at workplaces of $0.3\mu\text{g}/\text{m}^3$. To attain satisfactory protection of workers with filtering respirators, the published protection factor does not always guarantee safety and workers are required to protect themselves by their individual protection factor. Measurement of protection factor for each worker at each plant needs to be available.

