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## Characteristics of chemicals and trade secrets used in the semiconductor manufacturing industry



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The semiconductor industry is considered the highest technology based industry and is characterized by complicated processes as well as massive chemical use. This study aimed to know the overall status of the chemical use, trade secrets and to evaluate the high risk CMR (carcinogens, mutagens and reproductive toxic) chemicals used in semiconductor manufacturing industries. On behalf of OSHRI (Occupational Safety and Health Research Institute) Project in Korea, we collected data about Serial no. chemical product name, chemical constituents (chemical name, CAS No.) and trade secrets, contents of each product, the physical status of chemical, amount of annual use, manufacturer and vendor of the chemical products, chemical use process from 12 workplaces. On average,  $210 \pm 124$  chemical products were used in semiconductor industry and  $33 \pm 16\%$  of products contained at least one trade secrets. Numerous CMR substances were found including sulfuric acid, chromic acid, ethylene oxide, hydroquinone and 2-ethoxyethanol. More than 60% of chemical substance used in semiconductor industry has no NEFA index on health, safety and reactivity. Chemical product supplier was diverse. Average number of chemical product manufacturer was  $62 \pm 21$  per semiconductor plant and the number of chemical products supplied by each manufacturer was from 1 to 41 products. High proportion of trade secrets, numerous numbers of CMR, high percentage of no health and safety information on the chemical products waits on proactive challenge and study for green chemistry and sustainability in semiconductor industry.

### Biography

Chungsik Yoon has completed his PhD from Seoul National University in 1999 and got Certified Industrial Hygienist (CIH) from the American Board of Industrial Hygiene in 2001. He is the Professor of School of Public Health, Seoul National University and the Associate President of Korean Industrial Hygiene Association. He has published more than 150 papers in reputed journals and has been serving as an Editorial Board Member of the Safety and Health at Work journal.

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