

Carcinogens

[Click here for the general use Standard Operating Procedure for carcinogens.](#)

Summary: The risks associated with the use of laboratory chemicals must be well understood prior to their use in an experiment. As many chemicals have multiple hazards, ensure to review the safety guidance for all hazard classes that may apply.

Definition:

Carcinogens are chemicals or physical agents that cause cancer or tumor development, typically after repeated or chronic exposure. Their effects may only become evident after a long latency period and may cause no immediate harmful effects.

Further, Cal/OSHA (8 CCR 5191) defines a “select carcinogen” as a substance or agent that meets one of the following criteria:

1. It is regulated by Cal/OSHA as a [carcinogen](#).
2. It is listed under the category, “known to be carcinogens” in the Annual Report on Carcinogens published by the [National Toxicology Program](#) (NTP)(latest edition); or
3. It is listed under Group 1 (“carcinogenic to humans”) by the [International Agency for Research on Cancer](#) (IARC)
4. It is listed in either Group 2A or 2B by IARC or under the category, “reasonably anticipated to be carcinogens” by NTP, and causes statistically significant tumor incidence in experimental animals in accordance with any of the following criteria:
 1. After inhalation exposure of 6-7 hours per day, 5 days per week, for a significant portion of a lifetime to dosages of less than 10 mg/m³;
 2. After repeated skin application of less than 300 mg/kg of body weight per week; or
 3. After oral dosages of less than 50 mg/kg of body weight per day.

Examples:

Carcinogens used in Stanford University laboratories include: Methylene chloride, benzene, formaldehyde, and acrylonitrile.