

Photosensitizing Substances

Depending on work tasks and a range of personal factors, some outdoor workers may come into contact with or be at a higher risk from photosensitizing substances.¹ Photosensitivity is important as it can cause a worker's skin to burn more easily from exposure to the sun and increase their risk of developing skin cancer.²

What is Photosensitivity?

Photosensitivity is an abnormally high sensitivity of the skin or eyes to ultraviolet (UV) radiation. It can be produced through ingestion, inhalation, or skin contact with substances known as photosensitizers.² Photosensitizing substances can be found in industrial chemicals, drugs, plants, and some essential oils and fragrances. Symptoms will vary depending on the level of UV exposure, the type and amount of photosensitizer exposed to, and personal factors such as skin type, age and sex, and previously developed sensitivity.³

Industrial Chemicals

Photosensitization of the skin and eyes can be caused by exposure to particular industrial chemicals. Exposure can happen through the chemical contacting the skin, vapors being inhaled, and fumes affecting the eyes. Adverse effects include cancerous skin lesions from exposure to tar and the sun, and exposure to coal tar fumes and the sun can cause severe inflammation in the eye.³

Medications

Some medications are associated with photosensitivity. These medications are usually ingested or applied to the skin. Photosensitization in this case is often dose-related (it increases with increasing dose) and may not occur after the first use. The photosensitizing potential of a medication is required to be included in information provided when the medication is dispensed, so anyone taking a medication should ensure that they are aware of whether it may cause photosensitivity. If photosensitivity is experienced with use of a medication, medical advice should be sought and ongoing sun exposure should be avoided.³

Plants

There are a range of plants that are known to cause photosensitivity when there is skin contact with the plant or its juices. Outdoor workers mainly affected include: gardeners, surveyors, construction workers, horticulturalists, agricultural, and forestry workers.³



Visit sunsafetyatwork.ca for more information.

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Common Substances that Cause Photosensitivity³

Dyes:	
Acridine	Fluorescein
Bromofluorescein	Methylene Blue
Eosine	Rhodamine
Erythrocin	Rose Bengal
Coal Tar and Derivatives:	
Anthracene	Phenanthrene
Pitch	Creosote
Chlorinated Hydrocarbons:	
Chlorobenzene	Triphenyls
Diphenyls	
Plants:	
Bergamot	Fennel
Bind Weed	Fig
Buttercup	Lemon
Chrysanthemum	Lime

Controlling for Photosensitizing Substances

As part of a comprehensive risk assessment, workplaces should conduct a review of tasks and activities that may expose workers to photosensitizing substances. If workplaces identify that there is the potential for worker exposure, or if particular workers are identified as being at higher risk, suitable control measures should be implemented. These measures may include:

- Ensuring that all outdoor workers are aware of the potential for photosensitivity and are aware of signs and symptoms to look out for in themselves and their colleagues.
- Ensuring at-risk workers receive training on how to identify chemicals or plants known to cause photosensitization and on suitable first aid/medical attention.
- Ensuring protection against contact exposure, through normal sun safety personal protection (long sleeve shirts and pants, eye protection) and through additional personal protection such as gloves and face shields. Oil-based sunscreens have also been shown to provide better protection against plant-related photosensitivity than water-based sunscreens.³

For further information on including assessing photosensitizing substances as part of a sun safety risk assessment, review our resource titled *Sun Safety Risk Assessment – Operational Review*.

Hierarchy of Risk Controls for Sun Safety:
1. Elimination or substitution
2. Engineering controls
3. Controls that increase awareness
4. Administrative controls
5. Personal protection