



Perchlorate

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emerging PBT (persistent, bioaccumulative, toxic) | www.toxies.com/perchlorate

Perchlorate likes to get things started with a bang! She's been typecast in action roles starring as an oxidizer in rocket fuel, explosives, airbags and fireworks. As ammonium perchlorate, she is also a major component of solid rocket fuel. Her performances as a bad actor chemical interfere with iodide uptake into the thyroid gland, causing hypothyroidism in mothers and negatively impacting proper childhood development, with effects such as decreased learning capability.

While no one denies Perchlorate's ability to light up the sky and screen, her "special effects" aren't contained...she's made her way into the drinking water for tens of millions of Californians, and into the groundwater or soil of 43 states.

BUILD/WEIGHT Salts derived from perchloric acid, ClO_4^- , is mostly soluble in water.



LEADING ROLES

Perchlorate stars most brightly as a rocket fuel oxidizer that provides that extra liftoff boost. Potassium perchlorate is used in fireworks, ammunition percussion caps, explosive primers, and sparklers. As Ammonium perchlorate, she is an important oxidizer in solid rocket propellants, which includes Space Shuttle Solid Rocket Boosters.

Perchlorate is manufactured at two facilities near Henderson, Nevada - Pacific Engineering & Production Company of Nevada and Kerr-McGee Chemical Corporation - from World War II to the present.

Considerable amounts of Perchlorate were discharged in the liquid wastes from the facilities into unlined evaporation ponds. The groundwater in the vicinity of the industrial complex has been contaminated and is seeping into the Colorado River.

SPECIAL SKILLS

Perchlorate adversely affects human health by interfering with iodide uptake in the thyroid gland. In adults, the thyroid gland helps regulate the metabolism by releasing hormones, while in children, the thyroid helps in proper development. Perchlorate is a serious threat to human health and water resources.

"Perchlorate disrupts how the thyroid functions," according to the US Environmental Protection Agency (EPA). "Impairment of the thyroid function in expectant mothers may impact the fetus and newborn and result in effects including changes in behavior, delayed development and decreased learning capability."

Mothers who drink water with detectable levels of Perchlorate give birth to babies with elevated levels of thyroid stimulating hormone, an indicator of the thyroid disorder known as hypothyroidism.

PERFORMANCE REVIEWS

In 2004, milk from cows raised in some parts of California may expose infants and children to more of a toxic rocket fuel chemical than is considered safe by the US EPA and the State of Massachusetts.

In the first study to look for Perchlorate in California supermarket milk, Environmental Working Group found it in 31 out of 32 samples purchased from grocery stores in Los Angeles and Orange counties and in all 32 samples of milk collected in Alameda, Sacramento, and San Joaquin counties.

RECENT CAREER HIGHLIGHTS

In 2009, making good on Obama's EPA Administrator Lisa Jackson's confirmation promise, the agency is moving ahead with its deliberations on whether to impose the first national limits on drinking water contamination by Perchlorate, the main component of solid rocket fuel.

REPRESENTING AGENTS

Agents include: Perchlorate Study Group, Perchlorate Information Bureau, Council on Water Quality Committee to Assess the Health Implications of Perchlorate Ingestion, National Research Council, Aerojet, Alliant Techsystems (an aerospace conglomerate that has Utah facilities linked to Perchlorate contamination) American Pacific Corporation (a major producer of Perchlorate for space and defense programs), and Tronox (a chemical company spun off from Kerr-McGee, which had owned a plant in Nevada associated with a plume of Perchlorate-contaminated groundwater).

