

## CDC Scientists Find Rocket Fuel Chemical In Infant Formula

CDC Scientists Find Rocket Fuel Chemical In Infant Formula Source: EWG By Anila Jacob, M.D., M.P.H., Date: 04/01/09

Researchers from the U.S. Centers for Disease Control and Prevention (CDC) have reported that 15 brands of powdered infant formula are contaminated with

perchlorate, a rocket fuel component detected in drinking water in 28 states and territories.

The two most contaminated brands, made from cow's milk, accounted for 87 percent of the U.S. powdered formula market in 2000, the scientists said.

The CDC scientists did not identify the formula brands they tested.

The little-noticed CDC findings, published in the March 2009 edition of the *Journal of Exposure Science and Environmental Epidemiology*, raise new concerns about perchlorate pollution, a legacy of Cold War rocket and missile tests. Studies have established that the chemical is a potent thyroid toxin that may interfere with fetal and infant brain development (Kirk 2006).

The CDC team warned that mixing perchlorate-tainted formula powder with tap water containing "even minimal amounts" of the chemical could boost the resulting mixture's toxin content above the level the Environmental Protection Agency (EPA) considers safe. Many scientists contend that the EPA "safe" level is too high to protect public health.

"Safe" level too high

The risk to infants being fed cow's milk-based formula may be even greater than the CDC assessment suggests. A CDC study in 2006 found that trace perchlorate exposure considerably below the EPA's "safe" level (0.7 micrograms of perchlorate per kilogram of body weight per day, called the reference dose, or RfD) altered women's thyroid hormone levels (Blount et al 2006a).

Based on this study, the Environmental Working Group has recommended that EPA promptly set a legally enforceable upper limit on perchlorate contamination in drinking water, consistent with the latest science on perchlorate's toxic effects.

Obama EPA considering action

At her January 14 confirmation hearing, EPA administrator Lisa Jackson promised California Senator Barbara Boxer, whose state has borne the brunt of perchlorate contamination from old launch sites and aerospace facilities, that she would act "immediately" to reduce perchlorate contamination in drinking water in order to protect children and pregnant women.

Since her confirmation, however, Jackson and EPA have not made public a plan of action.

Pentagon lobbied Bush administration

Last fall, the Bush administration's EPA leadership touched off a major furor by declaring that perchlorate posed no threat to most Americans and did not need to be regulated as a drinking water pollutant.

The decision was widely regarded as a major victory for the Pentagon and defense and aerospace contractors reluctant to pay clean-up costs that could mount into the hundreds of millions of dollars.

EPA's move triggered protests from consumers, lawmakers, scientists and medical experts - among them, two of the agency's prestigious outside science advisory panels.

Melanie A. Marty, a senior career EPA official and chair of EPA's Children's Health Protection Advisory Committee, declared that the agency's refusal to regulate perchlorate in drinking water exposed some infants to "the life-long consequences of impaired brain development."

On January 8, EPA issued a non-binding "health advisory" on perchlorate and asked the National Academy of Sciences to review the issue.

EWG dismissed EPA's action as "nothing more than an effort to dodge the issue and buy time for the defense, aerospace and chemical industries."

Years of federal inaction have prompted some states to set their own mandatory limits for perchlorate in drinking water: California, at 6 ppb and Massachusetts at 2 ppb. While recent scientific research has shown these standards too weak to protect public health adequately, they are far more stringent than EPA's action in January.

Studies find pollution in people, food

Concern about perchlorate pollution has intensified as a series of studies have found perchlorate in the urine of every American tested by the CDC and in breast milk (Blount et al 2006b, Pearce et al 2007).

In 2008, an EWG analysis found that toddlers were especially vulnerable to perchlorate exposure from contaminated food. Toddlers, who are growing rapidly, consume large amounts of food daily, relative to their size. Moreover, those who live in places like California and Texas, where high perchlorate levels have been measured in some drinking water

supplies, are doubly exposed to perchlorate contamination.

EWG's analysis was based on 2008 federal Food and Drug Administration (FDA) tests that found almost 75 percent of food and beverage samples tainted with perchlorate, possibly from contaminated irrigation water (Murray et al 2008).

#### CDC finds perchlorate in 15 formula brands

The new CDC study is the first to examine perchlorate exposure of infants fed powdered formula reconstituted with contaminated drinking water. The CDC team tested 15 brands of powdered infant formula in four categories: cow milk-based with lactose, cow milk-based lactose-free, soy-based and elemental.

"Perchlorate was found in all brands and types of infant formula tested," the scientists said. The worst perchlorate contamination was found in formula based on cow's milk with lactose.

The CDC team said that combining cow's milk/lactose formula with water containing perchlorate at just 4 parts per billion (ppb) could cause 54 percent of infants consuming the mix to exceed EPA's "safe" level.

The number of babies exposed to unsafe levels of perchlorate would rise if, as EWG and many other science and health advocates argue, the EPA "safe" level were lowered to reflect recent scientific studies.

#### Formula required to contain iodine

While these findings are of concern, the CDC scientists also note that FDA requires infant formula to be supplemented with iodine, a nutrient that can counteract the negative effects of perchlorate on the thyroid gland. The range of required iodine concentrations in formula is between 5 and 75 micrograms per 100kcal of energy.

Iodine supplements at higher levels may offer some protection from the toxic effects of perchlorate. But the CDC scientists estimate that those brands that contain only the minimum iodine concentration of 5 micrograms would leave infants iodine-deficient and thus more vulnerable to the toxic effects of perchlorate. A scenario in which formula contained 40 micrograms of iodine (per 100kcal of energy) would offer more protection for infants, but the scientists stress that even adequate iodine intake among formula-fed infants is not guaranteed to prevent "perchlorate-induced thyroid dysfunction."

#### Strict drinking water regulation of perchlorate needed

This study represents perhaps the strongest evidence to date supporting the need for a legally enforceable safe drinking water level that

protects pregnant women, infants and others who are most vulnerable to the effects of this harmful chemical.

The new Obama administration leadership at EPA can and should take steps to reduce infants' exposures to perchlorate pollution in tap water.

#### References

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