

SAFEGUARDS

SGS CONSUMER TESTING SERVICES

FOOD

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DICYANDIAMIDE CONTAMINATION IN DAIRY PRODUCTS FROM NEW ZEALAND

On 25 January 2012, the Wall Street Journal reported the contaminant Dicyandiamide (DCD), a harmful substance, found at low levels in milk produced September 2012 by a New Zealand based company. This finding was not disclosed by the New Zealand government because they assured that the level found was safe for consumers. Nevertheless, dairy importing countries such as Chinese Mainland and Taiwan are worried and randomly check the dairy products shipments from New Zealand to determine whether the products contained DCD in excess of the European Commission's established daily intake which has been set at 1 mg/kg bw/day and evaluated for food packaging material as DCD source¹.

Dicyandiamide (DCD) is a chemical substance used for many applications including in the fertilizer industry to solve the problem of nitrate pollution by reducing both nitrate leaching from soil to waterways and nitrous oxide gas emission. Those characteristics are used to increase pasture production. Apart from agriculture, DCD is applied in a number of industries including electronics, pharmaceutical, and food packaging².

During biodegradation, DCD can easily degrade to carbon, ammonia, and water in warm soil. However, DCD degrades slowly at low temperatures and infiltrates through the root zone with heavy rains. DCD accumulates in pastures over time which leads to the uptake by cattle from feed plants resulting in the amount of this substance at a level of parts per billion (ppb) in dairy products. The New Zealand government required companies that manufacture and sell DCD to suspend DCD sales. These companies were also required to test raw milk and various dairy products made in September 2012 because it coincided with the time that DCD was applied. DCD is well proven as an effective compound to increase productivity while reducing the environmental impact of nitrate. However, human risk assessment and the international acceptable safety level are still a concern.

No specific limits exist for DCD in food products and detectable amounts of DCD in food products could be unacceptable to consumers. Some countries set zero tolerance on any residue undefined by their standards. Since DCD is a water soluble compound which has a low molecular weight, it is a challenge to determine the level

¹ <http://www.efsa.europa.eu/en/efsajournal/doc/36.pdf>

² <http://www.stuff.co.nz/the-press/business/8220907/Fears-of-tainted-image-for-NZ-milk>



in food products with conventional techniques. To assure consumer's safety sophisticated test methods need to be applied to determine DCD satisfactorily in complex food matrices.

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