MATERION

FREQUENTLY ASKED QUESTIONS

Frequently Asked Questions about the Beryllium Blood Lymphocyte Proliferation Test (BeBLPT)
FAQ 203

What is the BeBLPT?

The BeBLPT is a laboratory test conducted on a blood sample to measure the reaction of a person's immune cells to beryllium. When copies of the person's immune cells that carry the allergic response to beryllium are exposed to beryllium, the immune cells respond by multiplying. The amount of immune cell multiplication is measured and recorded, and then used to calculate the results which are expressed as stimulation indices (SIs). These SIs are compared to a standard, most labs use "3," and the test is considered positive or abnormal if 2 or more of six results are above the standard. The test is considered negative or normal if none of the results exceed the standard and the test is considered borderline if one result exceeds the standard. Persons with two or more positive or abnormal BeBLPTs have been considered to be confirmed sensitive to beryllium in most research studies.

What is beryllium sensitization?

Beryllium sensitization means a response in the immune system of a specific individual who has been exposed to beryllium. There are no associated physical or clinical symptoms and no illness or disability with beryllium sensitization alone, but the response that occurs through beryllium sensitization can enable the immune system to recognize and react to beryllium. While not every beryllium-sensitized person will develop CBD, beryllium sensitization is essential for development of CBD.

Is a positive BeBLPT the same as a diagnosis of CBD?

No. Diagnosing sub-clinical CBD requires a biopsy to obtain samples of lung tissue using a medically invasive procedure called a bronchoscopy, which has associated health risks, such as a collapsed lung, bleeding or infection and a possibility of death.

Is the BeBLPT reliable?

No. The BeBLPT is highly variable[1] and unreliable. Substantial disagreement in test results has been found when test data are compared within and between the laboratories that conduct the BeBLPT[2,3,4]. Materion Brush Inc. has observed periods of instability in laboratory performance in three of the four commercial labs offering the BeBLPT. This instability among the laboratories has been confirmed in a blinded scientific study by Cher[4]. This lack of stability makes consistent scientific and clinical work very difficult. Additionally, some individuals who test consistently positive at one point in time may test consistently negative at a later point in time. In a survey at Materion Brush Inc.'s Elmore, Ohio facility, 18 persons who were confirmed BeBLPT positive (2 positive tests) in the early 1990s and who continued to work in beryllium operations were retested in 1999. The retest found 10 of the 18 (55%) tested negative based on testing a blood sample at two different laboratories[3]. A study by Donovan[8] performing serial testing of new workers using the BeBLPT demonstrated that individual worker test results can vary back and forth between positive and negative over time. Studies have also found that 1-2% of individuals not occupationally exposed test positive for sensitivity to beryllium

using the BeBLPT [5,6,7,8]. Despite its variability and reliability issues, the BeBLPT remains the best available test for identifying beryllium sensitization.

Should beryllium workers be tested with the BeBLPT?

The use of the BeBLPT was included in the new Beryllium Standard for General Industry (29 CFR 1910.1024) issued by the United States Occupational Safety and Health Administration (OSHA) in January 2017 as part of Medical Surveillance requirements for employees exposed at or above an Action Level (AL) of 0.1 µg/m^3 or prompted by other specified situations.

How can I obtain assistance?

If you have any questions regarding the above information, please contact your sales representative; our sales department at +1-216-486-4200; or the Product Safety Hotline at 1-800-862-4118 (in the U.S.) or +1-216-383-4019 (outside the U.S.). This document, as well as other product specific safety data information, can be found at www.materion.com. Additionally, information on the Beryllium Worker Protection Model and process specific safety guidance can be found in the Interactive Guide to Working Safely with Beryllium and Beryllium-containing Materials at www.berylliumsafety.com.

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[8] Donovan E.P., et al. Performance of the beryllium blood lymphocyte proliferation test based on a long-term occupational surveillance program. Int Arch Occup Environ Health. (2007).