
Beryllium SENATE INQUIRY

Aviation Safety Advisory Services
3/12 Cooper Street,
Essendon Victoria 3040
18th February 2006

**Submission to Australian Senate Community
Affairs Reference Committee**

**Subject: Senate Community Affairs References Committee
Inquiry into 'Workplace Exposure to Toxic Dust'
-Beryllium & its Compounds (CAS# 7440-41-7)**

Preamble: This submission is made on Chronic Beryllium Disease' or Berylliosis resulting from worker exposure to Beryllium dust, fumes & aerosols in the workplace.

I have had more than 20 years of direct involvement with Regulatory Safety Authorities here & overseas & the Airline Industry plus Military (RAAF-ADF), etc on this issue.

For the last eighty years Australian Industry has been using Beryllium-Copper (BeCu) Alloys & Beryllium Oxide (BeO) materials in the Automotive Manufacturing Industry, Mining, Glass Manufacturing, Smelters, Foundries, golf clubs , ship manufacture, dental laboratorys (bridges & crowns), bicycle frames, aerospace, nuclear power, nuclear weapons, Military fighter aircraft, Commercial & light aircraft airframe, electrical Instruments & Avionics etc.

**Beryle or Beryllium being first discovered by a French Chemist Vauquelin in 1798 was introduced into Industry in the late 1900s. Chronic Beryllium disease (CBD) or Berylliosis of the lung has for many years been the subject of more written research material, medical documents, reports & reference book than any other toxic material used by man.
(There are over 2,000,000 Beryllium websites alone)**

Chronic Beryllium Disease (CBD) is considered by me & others to be far worse than Asbestos (Mesothelioma) related lung diseases in that it can affect every major organ of the human body, from lungs to heart, eyes, kidneys, liver, joints etc & Fibrosis of the lung, resulting in a fatal lung disease called Chronic Beryllium Disease or Berylliosis.

There are currently hundreds of Authoritive medical research papers, documents & reference books as well as documents to be found on CBD or Berylliosis on the web or obtainable from Professor Lee Newman M.D, the worlds leading medical & respiratory expert on Beryllium & Sarcoidosis at National Jewish Medical Research Center, Denver Colorado USA.

Prof. Newman has been researching & carrying out (BeLPT) Beryllium Blood Lymphocyte Proliferation Testing Beryllium on Beryllium dust exposed workers for the last 20 years & his Denver laboratories conduct over 4000 BeLPT diagnostic blood tests annually.

BeLPT Beryllium blood testing has commenced at John Hunter Hospital Newcastle NSW by Dr Glenn Reeves M.D Staff Medical Specialist in Immunology & Infectious Diseases in his laboratories after along detailed testing of imported 'Beryllium positive' samples and validation of results with Professor Lee Newman's National Jewish Medical Research Center in Denver Colorado USA.

No BeLPT testing of RAAF-ADF personnel or from the local Airline groups has been carried out so far, nor has there been any success with an application for a Berylliosis Research Grant from Australian Authorities, however BeLPT testing of some Airline workers will commence in mid February 2006.

QANTAS Sydney }
" Melbourne }
AIR NEW ZEALAND }

Two local major Airline companies have CBD Prevention Programs running at present; both adopted a Beryllium Exposure Standard (Action Point) of 0.2ug/m3 which is 100 times less than the NOHSC National Occupational Exposure Standard & the same as used mostly in USA) -Both organizations are involved in BeLPT testing programs too.

Exposure to Beryllium dust, fumes or aerosols during cutting, sawing, machining, heat treating or reaming results in workers developing Beryllium Sensitization and leading to (fatal) Chronic Beryllium (lung) Disease>This is a 'Disease of Long Latency i.e it may first appear 10, 20, 30, 40 or more years after a 'one time' low Exposure to Beryllium dust of 2% Beryllium in the metal alloy.

The U.S Department of Energy (DOE) has paid out U.S \$330,022,857 in Workers Compensation to 3075 workers exposed to Beryllium as at 15th February 2006 & in excess of U.S\$82,410,116 in medical costs. (See Attached document)

Beryllium-Copper Alloys (BeCu) or Copper-Beryllium are used extensively in all Commercial Airline aircraft including RAAF-ADF & light aircraft in Australian & NZ (14,234 total). It is used in engines, APUs, aircraft main & nose landing gear bushes, wheels & brakes; in airframe structures, flaps & slats bushes, horizontal stabilisers; in helicopters droop stop mount bushes, rotor blade bushes & in some jet engine Igniter plug firing tips.

Beryllium Oxide (BeO) is used in electrical wiring, instruments, communications systems including radios, radar, black boxes, computers, weaponry systems & Beryllium dust is found in aircraft weapons bays of aircraft. It is also used in the manufacture of the new Airbus A380 Aircraft structures and electrical wiring of this aircraft and all RAAF-ADF Aircraft.

The introduction of "very strictly enforced" 24 Point CBD Chronic Beryllium Prevention Program in Separate Machine Shop locations; an Annual Beryllium Safety Awareness Training Program & a 'voluntary' reduction in Beryllium Occupational

Exposure Standards reduced from 2.0ug/m³ down to a minimum of 0.2ug/m³ (or lower) will reduce the risk of exposure of Beryllium exposure to workers in the workplace.

American Council of Government Hygienists (ACGIH) have just announced (Feb 3rd 2006) their Board of Directors voted on the adoption of their Notice of Intended Changes for 2006 for Beryllium, proposing that it include a TLV-TWA of 0.00005mg/m³ (inhalable), a TLV-STEL of 0.0002mg/m³ plus skin & SEN notations and a A1 Carcinogenicity classification in their 2006 draft document (attached).

The current (published) NOHSC National Occupational Standard for Beryllium shows a Beryllium Standard of 0.002mg/m³ or 2.0ug/m³ which has stood for many years however in other countries like USA they have been using 0.2ug/m³ since 1999 (100 times lower)

Beryllium is a 'most unusual material' having unique properties; being harder than steel, non-magnetic, non-corrosive, plus electrical conductivity values that make it impossible to find a suitable substitute -so this material will continue to be used for many years to come HOWEVER it can only be used & processed safely by introducing very strict workplace guidelines, new workplace practices & a complete 24 Point Chronic Beryllium Prevention Program, & Safety Awareness Training package .


The current worker Beryllium Exposure Standard used by OSHA, NOHSC (DEWR) and OASCC are totally inappropriate & outdated, as noted on the NOHSC National Exposure Standard website

Beryllium exposure information that is 10-14 years old (Refer attached Website document) still to this day refers to 1991 & 1995 documents and there needs to be an 'urgent review' of Beryllium National Exposure Standards here in Australia as soon as possible with various State and Territory OHS Regulations being introduced to legally enforce these Standards .

This issue has been raised with of the appropriate Ministers over the last four years but there has been no changes to the NOHSC website information or warnings todate.The issue was first raised with NOHSC in 1999/2000 but remains unresolved to this day.

Beryllium and its alloys continue to be used, machined and processed on a daily basis & the Senate Inquiry attention is drawn to the urgent need for greater public and Industry awareness of this highly toxic material & its dusts, fumes and aerosols and to the need for all workplaces machining or processing Beryllium to have to introduce an effective 24 Point CBD Prevention Program & Safety Awareness Training Package

For your consideration,


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Ret. Safety Manager TAA & Australian Airlines,
Safety Institute of Australia, College of Fellows,
Chair SIA Special Group on Beryllium

18/02/2006

Bruce

New 24 Point CBD Prevention Program -any more suggestions?

Regards

John Edwards

CHRONIC BERYLLIUM DISEASE PREVENTION PROGRAM

24 POINT CBD PREVENTION PROGRAM

1. Wet Machining of all Beryllium material/s
2. Localised Exhaust Extraction System incl HEPA filters on all machines & HEPA filter system on machine coolant tanks (Aerosols)
3. Provision of 'tyvek disposable' coveralls
4. Provision of full PPE incl gloves, goggles & respirators
5. Dedicated Beryllium workers ONLY
6. Dedicated Beryllium machines ONLY
7. 'No Entry- No Access Beryllium areas 'preferable separate' machine shop areas to avoid contamination of other work areas.
8. Beryllium surface dust monitoring during clean-up procedures
9. Beryllium Airborne contaminant monitoring
10. Regular Annual Medicals including X-Ray & Spirometry
11. Medical Surveillance Program & Beryllium worker records
12. Machine Dust clean up/swipe procedures
13. Filter System clean-up & filter replacement Program & Medicals for maintenance/cleaning workers
14. Approved Industrial Vacuum cleaner with HEPA Filters
15. Approved Beryllium dust & Swarf disposal procedures
16. Annual Beryllium Safety Awareness Training Program
17. Banning ALL smoking, eating & drinking 'in Beryllium work areas'
18. Recording of all Beryllium work done by individual workers
19. All Beryllium work done in batches
20. Separate 'personal lockers for work clothing & PPE' / separate\
21. Foot wear & sock covers/ Personal Hygiene showers
22. No Beryllium work clothes or footwear to be taken home
23. Banning of all Beryllium workshop air hoses
24. BeLPT & Beryllium Skin Sensitization tests & results

Postscript:-

You may well ask how many Australian workers have been diagnosed with Chronic Beryllium Disease or Berylliosis since we have been using, machining and processing this toxic material since the 1940s's

Well the answer is simply we don't know yet, as until this week there has been no dedicated BeLPT Beryllium Blood Lymphocyte testing laboratory doing tests on workers exposed to Beryllium materials and organizations have relied on physical medical testing including Chest X-Rays and Spirometry.

One thing that is sure is that very large numbers of Australian & New Zealand workers have been exposed to Beryllium-Copper alloys and Beryllium Oxide and to dusts, fumes and aerosols over those years and Australia is no different from USA where there are currently 3075 diagnosed CBD cases recently paid out in Workers Compensation. There have been some cases diagnosed in Australia but we will have to wait on the results of BeLPT tests for more in the future.

Meantime those Airlines that have introduced Chronic Beryllium Disease Prevention Programs have separate Machine shop areas, dedicated machinery i.e lathes, grinders and shapers etc fitted with ^{EXHAUST SYSTEMS PLUS} HEPA exhaust filters, dedicated Beryllium workers, with full Personal Protective Equipment, and a 24 Point Program aimed at reducing the risk of workers exposure, medical surveillance, work records and medical testing etc.

John Edwards