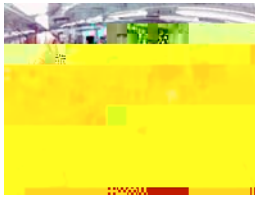


## Boron - Why do we care?

Lab prepares samples for atom counting, one by one.

Boron gets in the way.



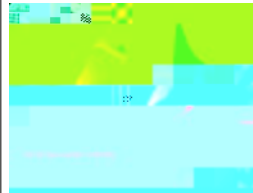
The lab is used for ultra-sensitive analyses:

*ppq = one human hair out of all the hair on all the heads of all the people in the world*

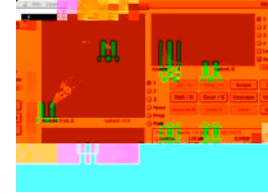
*ppt = one square foot of floor tile on a kitchen floor the size of Indiana*

## Boron- Causing Trouble

post fire from sheetrock and fiberglass?

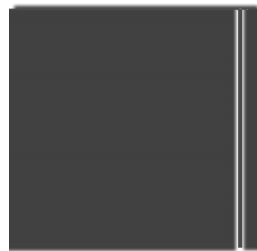


from uncontaminated lab



## Boron - What is it?

- A light element
- Commonly used for
  - Fireproofing
  - Glass making
  - insecticide
- Non toxic
- Natural sources



## Boron - Where does it come from?

US and Turkey are the world's largest producers of boron.

Boron is a natural element that occurs in rock formations.



## Boron - Where can you find it?

Element	Symbol	Atomic Number	Atomic Weight
Boron	B	5	10.81
Carbon	C	6	12.01
Nitrogen	N	7	14.01
Oxygen	O	8	16.00
Sulfur	S	16	32.06
Chlorine	Cl	17	35.45
Calcium	Ca	20	40.08
Strontium	Sr	38	87.62
Barium	Ba	56	137.33
Radium	Ra	88	226

Boron is a natural element that is added to drywall as a fire retardant.



## Boron - Where can you find it?



As a fire-retardant in blown cellulose insulation, usually boric acid.



## Boron - Where can you find it?



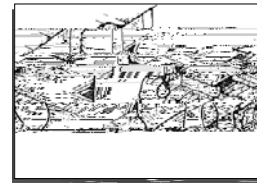
As a part (about 5%) of fiberglass insulation, usually as borosilicate glass.



## Boron - Where can you find it?



Boron is present in and on most HVAC systems as a fire-retardant in filters and as borosilicate fiberglass insulation.



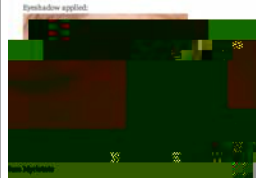
## Boron - Where can you find it?



As Borax, boron is a common additive to soaps and laundry detergents.



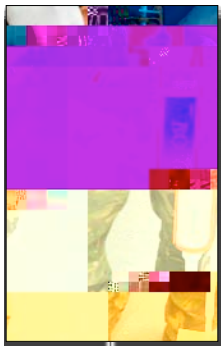
## Boron - Where can you find it?



Boron is found as various compounds in cosmetics and other health products.



## Boron - Where can you find it?

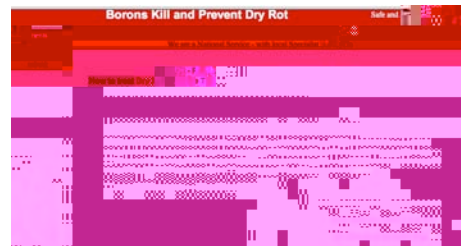


Boron is found as boric acid in insecticides, specifically roach killers.



## Boron - Where can you find it?

Boron is used as a fungicide applied to wood, concrete, and other masonry.



# Boron- What to do about it?

1. Keep fiberglass out of the lab and air system.
2. Keep insecticides and fire retardants away.
3. Do not use soaps and detergents in the lab.
4. Keep sheetrock out of the lab.
5. Don't wear sheetrock/fiberglass- contaminated clothing and boots in the lab.
6. Don't bring tools grossly contaminated with sheetrock dust or fiberglass into the lab.
7. Be wary of substitutions.
8. Check labels.
9. Get cleaner as completion approaches.
10. Ask if you have questions.