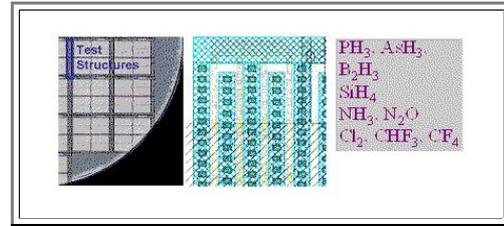


#### 4.1.4 Summary to: 4.1 Input to Si Processing in an Industrial Environment

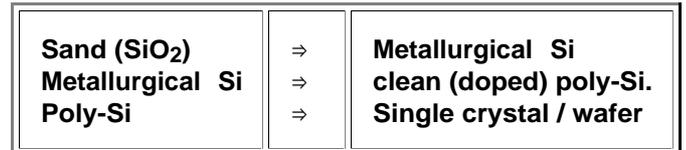
Semiconductor technology happens in factories. They need special materials, "reticles" (= structures), "know-how" and huge amount of money (= capital) as major inputs

- It's always about money! Only mass production will recover large investments.
- The materials side always contains semiconductor substrates ("wafers") and often very dangerous special "raw" materials.
- A number tells it all: **500 - 1.000** wafers /day are processed in a large **Si** "wafer fab"



Three big steps to **Si** wafers

- **Si** single crystal growth is done by "Czochralski process" (**CZ**).
- Dislocation-free crystals are possible but "bulk microdefects" and impurities cannot be totally avoided.
- Nearly perfect **300 mm** wafers are standard.



### Exercise 4.1-1

All Questions to 4.1