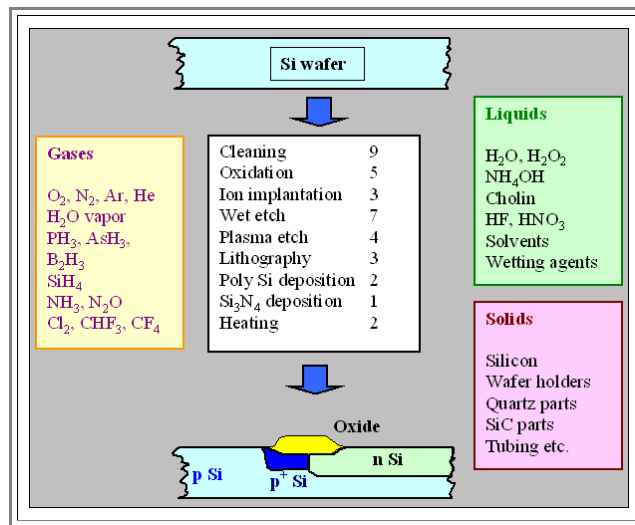


Processes and Materials I

Here is the list of processes and materials needed for the **16 Mbit DRAM** (an about **1999**) in a graphic way.

Illustration



Note that any material that comes in contact with the wafer or with materials that will come into contact with the wafer, is an **electronic material** - utmost care has to be taken in selecting the right stuff!

- Wafer holders or tweezers, e.g., can totally ruin a wafer by leaving minute amounts (far below the detection limit) of heavy metals (most notably **Fe**) on the wafer if they are unsuitable (Never, really never, touch the wafer with a metal tweezers!).
- Gas pipes may corrode internally if made from the wrong metal and thus contaminate the gas flowing through it with traces of impurities - your factory then will only produce garbage.

Note also that some of the most dangerous inorganic chemicals are used!

- HF** (hydrofluoric acid) will cause heavy tissue and especially bone damage already by its vapors - you do not even have to touch it to get severely damaged.
- PH₃** (phosphine) and **AsH₃** (arsine) are among the most toxic gases known to mankind; minute amounts are deadly (**PH₃**, in fact, was used as a poison gas in world war I).

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