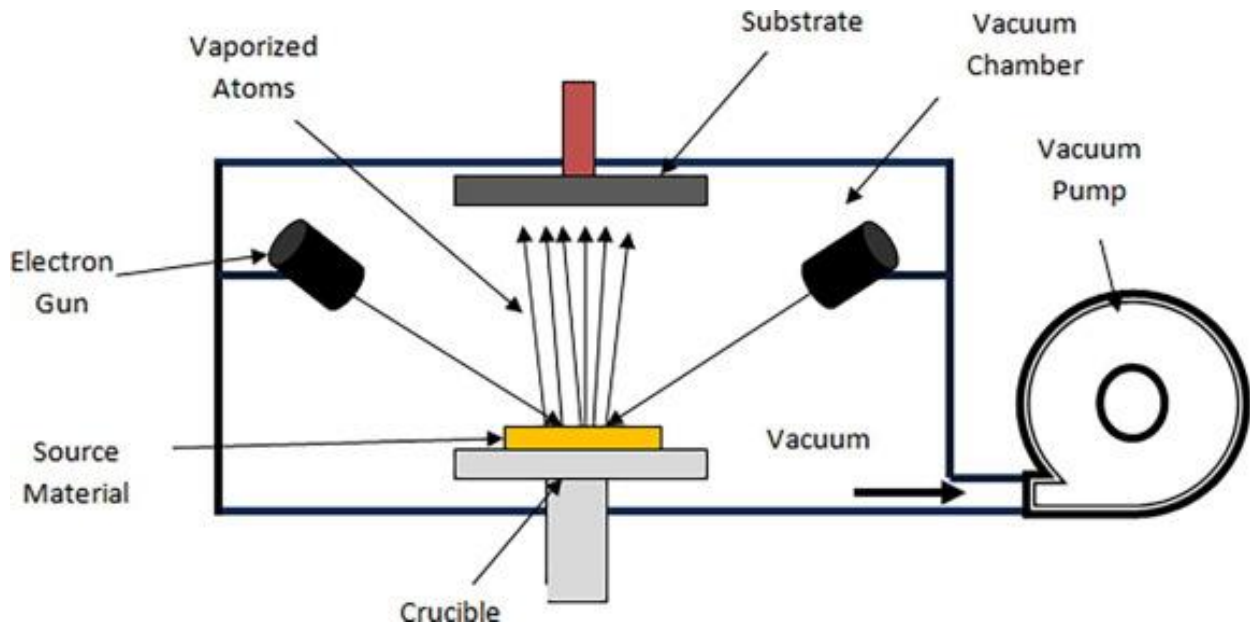


# SURFACE MODIFICATION

Surface modification is the act of modifying the surface of a material by bringing physical, chemical or biological characteristics different from the ones originally found on the surface of a material.



The surface modifications should inhibit oxidation, promote adhesion of further coatings, or reduce staining. Wet chemical etching enables production of porous textured surfaces of aluminum-alloys.

There are three general techniques used to modify surfaces: add material, remove material, and change the material already present. Several processes for the addition of material to surfaces are described in this paper. Two new processes that can create relatively thick coatings are sol-gel and plasma-spraying.

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# METHODS OF SURFACE MODIFICATION

The methods employed for surface modifications of implants can be broadly classified into 3 types-mechanical; chemical; and physical. Physical: The physical methods of implant surface modification include plasma spraying, sputtering, and ion deposition.

Thermal, chemical, and metallurgical surface treatment techniques are being applied to give materials the desirable properties for numerous applications in service.

Permanent surface modification involves specific chemical reactions which permanently modify the chemical composition of the surface by the application of high-energy sources such as radiation, flames, coronas, plasmas, electron beams, and ion beams to activate the surface before chemical bonding.

[Surface engineering](#) is the sub-discipline of [materials science](#) which deals with the surface of solid matter. It has applications to [chemistry](#), [mechanical engineering](#), and [electrical engineering](#) (particularly in relation to [semiconductor manufacturing](#)).

[Solids](#) are composed of a bulk material covered by a surface. The surface which bounds the bulk material is called the [Surface phase](#). It acts as an interface to the surrounding environment. The bulk material in a solid is called the [Bulk phase](#).

A surface analysis method is a technique for discovering the chemical structure of an extremely shallow and thin area called the surface number atomic layer of the solid matter.

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