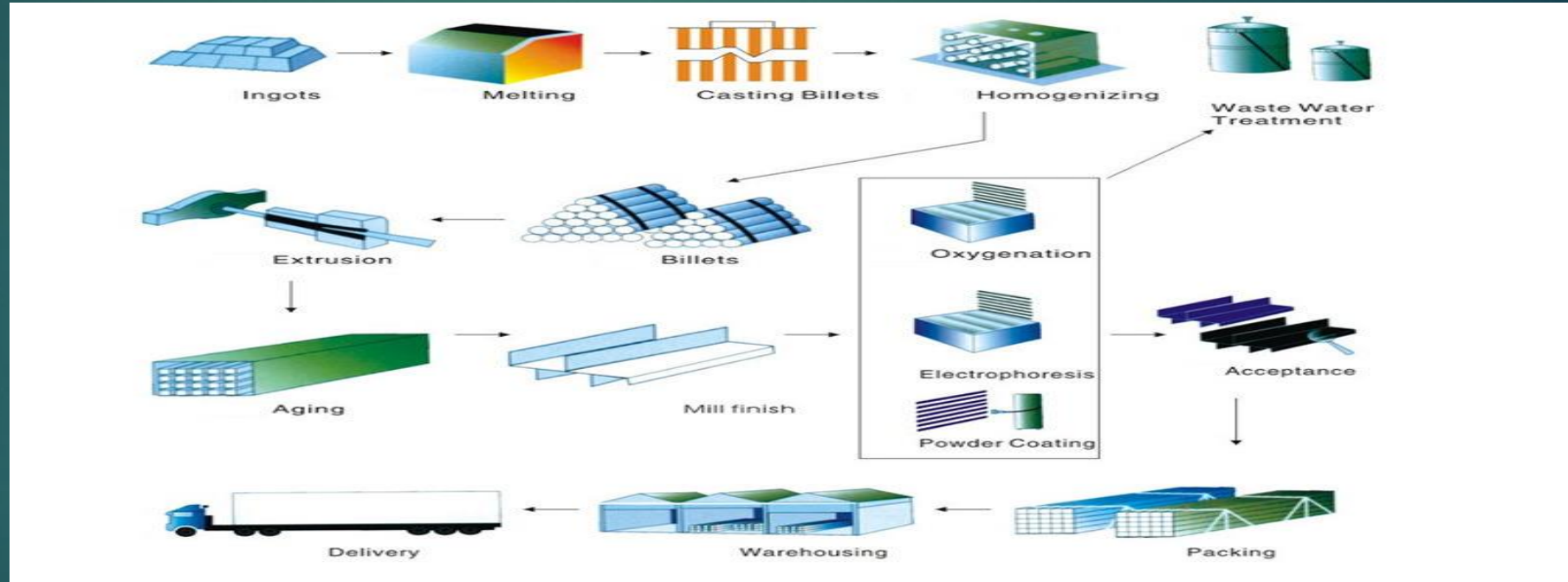


Production Of Aluminum Sections By Extrusion

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Production stages



Scrap Collection

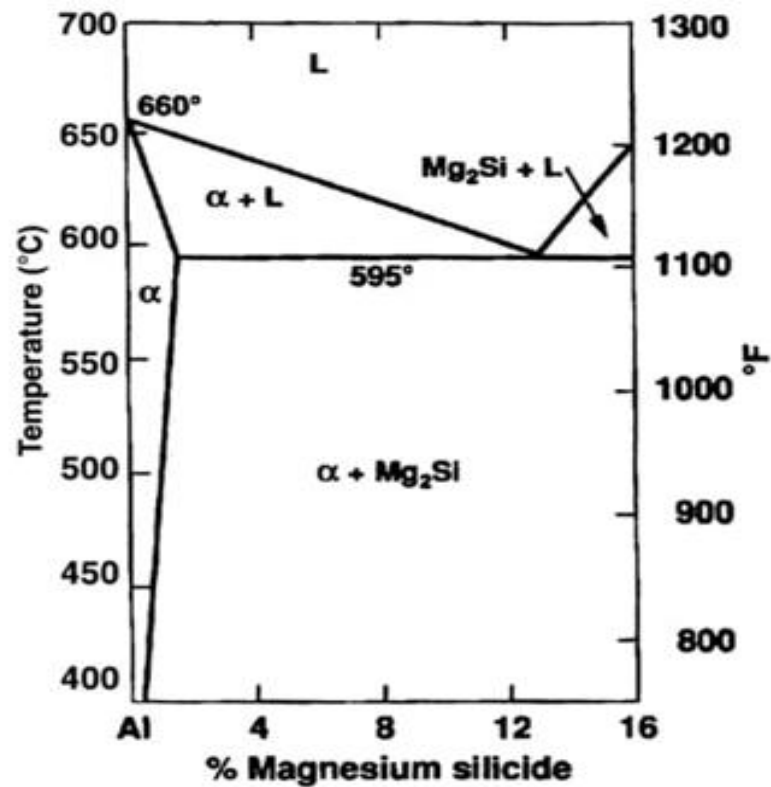
Edge Scrap

Processing Scrap

Butts Scrap



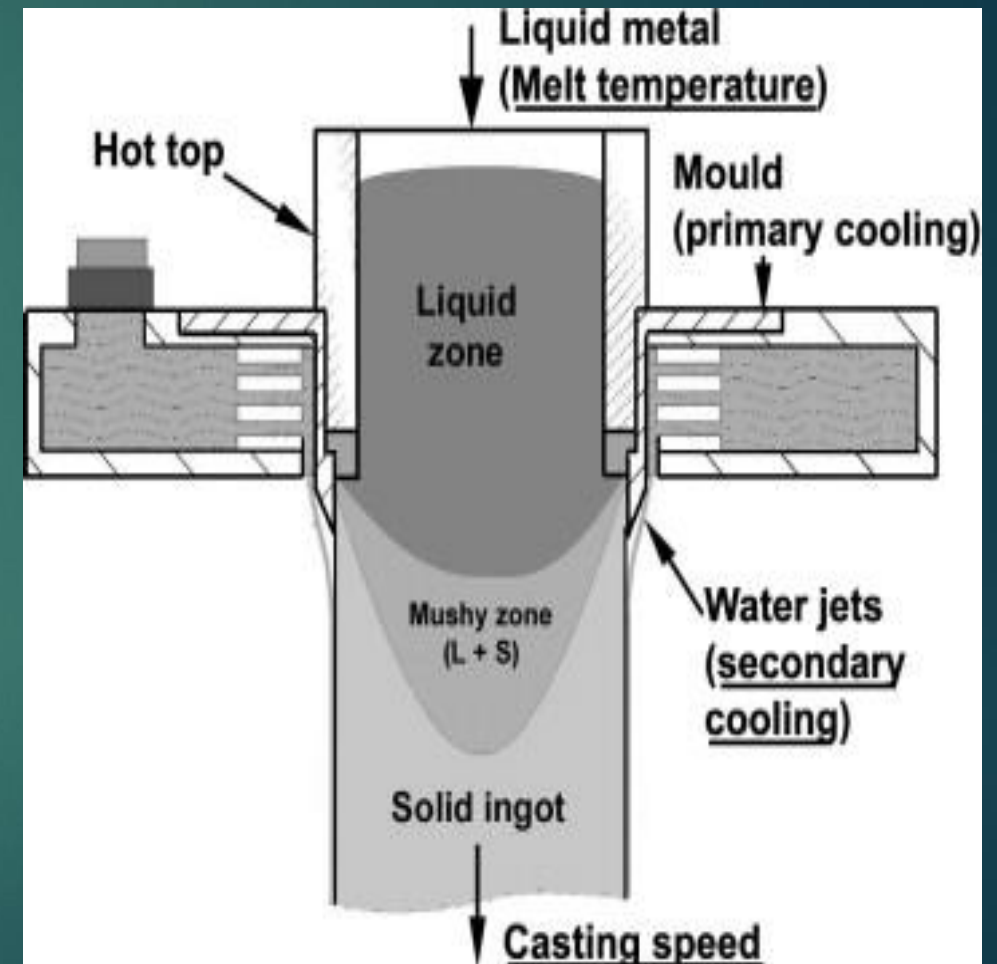
Melting



Casting

Direct-Chill (DC) Casting is currently the most common semi-continuous casting practice in non-ferrous metallurgy. The process is characterized by molten metal being fed through a bottomless water cooled mould where it is sufficiently solidified around the outer surface that it takes the shape of the mould and acquires sufficient mechanical strength to contain the molten core at the centre.

As the ingot emerges from the mould, water impinges directly from the mould to the ingot surface (direct chill), falls over the cast surface and completes the solidification



Homogenization

The term “homogenization” refers to the process of making things more uniform or similar, and that is essentially what is done in the process of aluminum homogenizing.

The aluminum part is heated to a temperature very near its melting point - between 900 and 1,000°F (480 and 540°C) - and then it is slowly cooled, causing the precipitating elements to become more evenly distributed throughout the material.

This leads to a more workable part with a more uniform internal structure

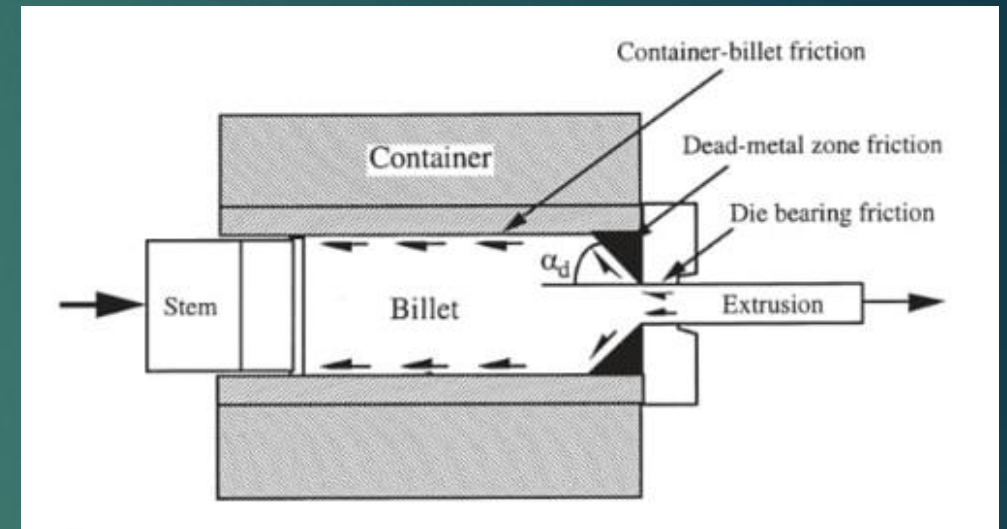
Extrusion process

Relationship Between Ram Speed and Extrusion Speed(Ref 24).

This section explains how to calculate the extrusion speed in terms of ram speed by using simple mathematical relations.

The extrusion speed could be calculated for any extrusion die by using volume constancy relation, which means that the volume metal in the container becomes equal to the volume of extrusion coming out of the die because there is no loss of metal during extrusion.

$$V_R A_C = V_E A_E$$



Age Hardening

- ✓ T₁ : Naturally aged after cooling from an elevated temperature from a forming process .
- ✓ T₂ : Cooled from an elevated temperature forming process , cold worked ,then naturally aged .
- ✓ T₃ : Solution heat treated , cold worked, then naturally aged.
- ✓ T₄ : Naturally aged after a solution heat treatment.
- ✓ T₅ : Artificially aged after cooling from an elevated temperature from a forming process .
- ✓ T₆ : Artificially aged after cooling from a solution heat treatment.
- ✓ T₇ : Solution heat treated then overaged.

References

- ✓ Casting : <https://www.totalmateria.com>
- ✓ Homogenization : <https://llfurnace.com>
- ✓ Scrap Collection : <https://images.app.goo.gl>
- ✓ Melting : <https://images.app.goo.gl>
- ✓ Extrusion process : <https://llfurnace.com>

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Production Of Aluminum Sections By Extrusion

Thank You