

# Smart Ni

## NICKEL TABLETS



### Sandelin Effect

The highest zinc coating is reached when the silicon in the steel is 0,04 to 0,12%, this range is called the 'Sandelin Curve'.

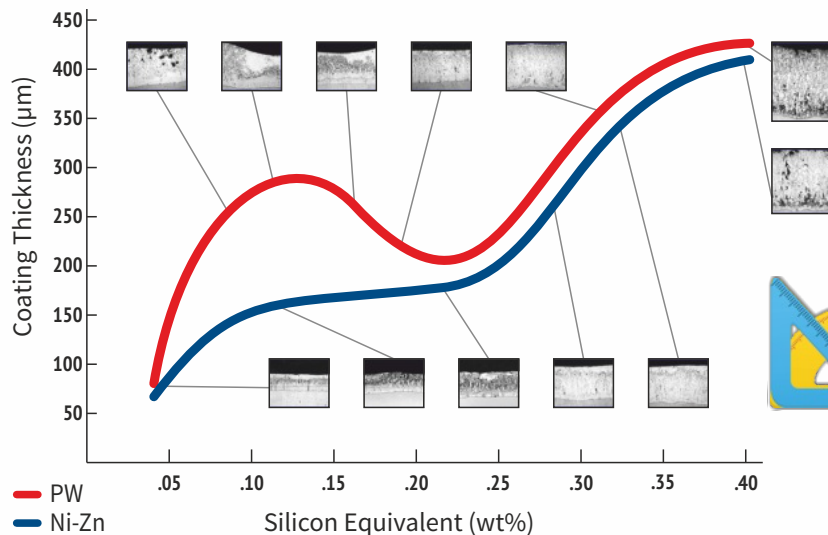
From this graph, it can easily be seen that the **addition of nickel to the zinc bath decreases the coating thickness** significantly when the silicon equivalent of steel is in Sandelin range.

Samples of Sandelin Effect



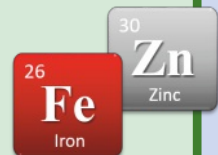
### Effect of Nickel on Coating Thickness (Sandelin Effect)

Galvanized at 455°C for 8 minutes



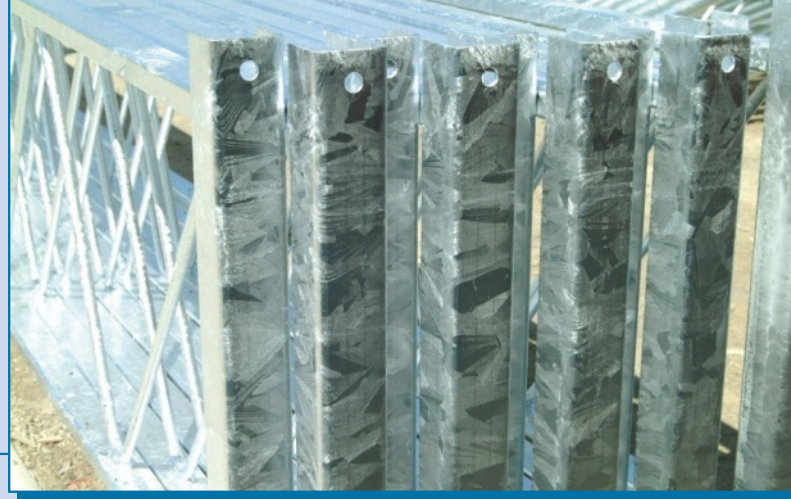
### Why Nickel?

- Advantages of Nickel when working with reactive steels;
  - Prevents high coating thicknesses.
  - Prevents growth of Fe-Zn alloy layer.
  - Prevents dark grey coatings.
  - Prevents peeling of coating.
  - Increases the coating homogeneity.
- Zinc saving from 5% to 15% in weight.
- Increases coating ductility.
- Smoother and brighter surface finish.
- Increases the fluidity of the Zn bath.
- Aesthetical coating appearance.

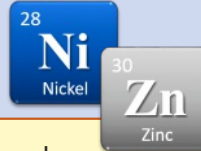


# SmartNi

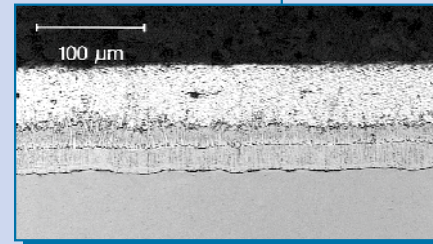
## NICKEL TABLETS



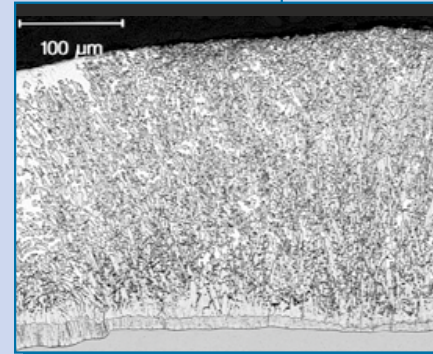
### Why Nickel Tablet?



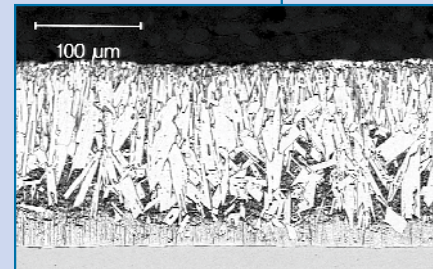
- Up to %30 reduction in nickel usage compared to Zinc-Nickel alloy ingots and powder Nickel applications.
  - Zinc Nickel Alloy Ingot, 1.7 kg Ni addition per ton zinc.
  - Nickel Powder 1.8 kg Ni addition per ton zinc.
  - Nickel Tablet, 1.2 kg Ni addition per ton zinc.
- The implementation is very simple and fast.
- No special expertise or tools required.
- Nickel floats on the surface of the zinc bath more than other methods, therefore does not settle down to zinc ash and dross.
- Nickel automatically dissolves in zinc bath.
- No dependency on purchasing of HG / SHG Zinc.



Normal coating



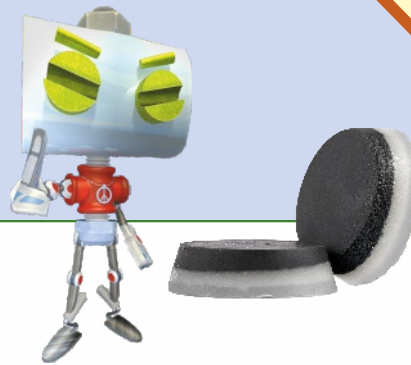
Bearded coating



Reactive coating

### Why ANI METAL SmartNi?

- Others: Nickel + Wax
- **ANI Metal SmartNi: Nickel + Wax + X** (X is our “know-how”).



- ANI Metal SmartNi provides a heat shield during burn-off, thus preventing consumption due to oxidation.
- Increases the solubility in zinc.
- Prevents precipitation, therefore helps reduce dross formation.

