Definition of Needs and Requirements

Overall Objective: Recycle Advanced Strength (high alloy) Steel.

Problems:

1. Separate advanced high strength steel (AHSS) from scrap autos (must keep separate throughout scrap cycle)
2. Use mix of AHSS and low carbon aluminum-killed (LCAK) scrap to make LCAK heat (batch of steel, 440,000lbs)
3. Do not cause off-chemistry steel (Avoid heightening residuals in a heat, or batch. At most have 15% scrap)
4. Decrease alloy costs. This can be done by increasing desired alloys in the steel. It can only be done for elements which are not fully oxidized during original making (occurs in BOF, “Basic Oxygen Furnace”).

[Scrap Metal Composition of AHSS and line pipe. Include needed weights of pure alloys needed to complete the Steel Process.]

Useful Compositions of Steel to Know:

AHSS Composition:

C 0.17% Cr 0.2% Cb 0.02%
Mn 1.5% Al 1.2%

Chemistry of Low Carbon Aluminum Killed (LCAK) Steel (in weight percentage)

C 0.04% Cr 0.1% max Cb 0.004% max
Mn 0.2% Al 0.04%