

ABSTRACT

Since 1987, the Iowa Department of Transportation has based control of hot asphalt concrete mixes on cold feed gradations.

This report presents results of comparisons between cold feed gradations and gradations of aggregate from the same material after it has been processed through the plant and laydown machine. Results are categorized based on mix type, plant type, and method of dust control, in an effort to quantify and identify the factors contributing to those changes.

Results of the report are:

1. From the 390 sample comparisons made, aggregate degradation due to asphalt plant processing was demonstrated by an average increase of +0.7% passing the #200 sieve and an average increase in surface area of +1.8 sq. ft. per pound of aggregate.
2. Categories with Type A Mix or Recycling as a sorting criteria generally produced greater degradation than categories containing Type B Mixes and/or plants with scrubbers.
3. None of the averages calculated for the categories should be considered unacceptably high, however, it is information that should be considered when making mix changes in the field, selecting asphalt contents for borderline mix designs, or when evaluating potential mix gradation specification or design criteria changes.