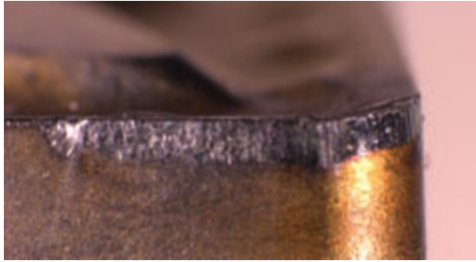


Failure Mechanism Analysis and Corrective Actions

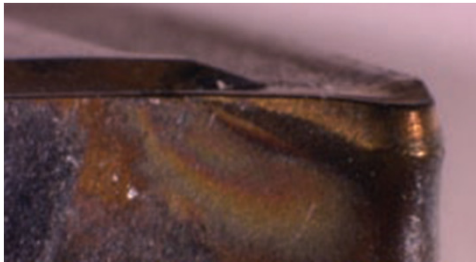
Edge Wear*



Corrective Action

- Increase feed rate.
- Reduce speed (sfm/m/min).
- Use more wear resistant grade.
- Apply coated grade.

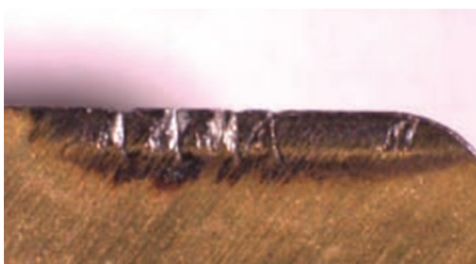
Heat Deformation



Corrective Action

- Reduce speed.
- Reduce feed.
- Reduce depth-of-cut (doc).
- Use grade with higher hot hardness.

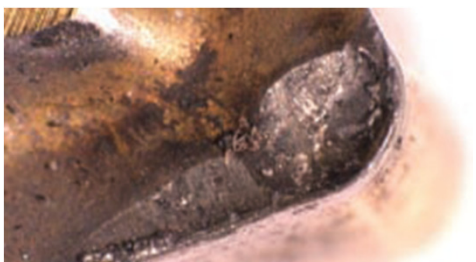
Thermal Cracking



Corrective Action

- Properly apply coolant.
- Reduce speed.
- Reduce feed.
- Apply coated grades.

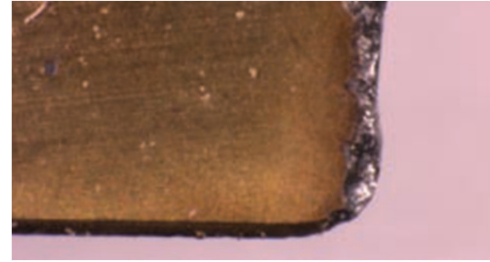
Crater



Corrective Action

- Reduce feed rate.
- Reduce speed (sfm/m/min).
- Apply coated grades or cermets.
- Utilize coolant.

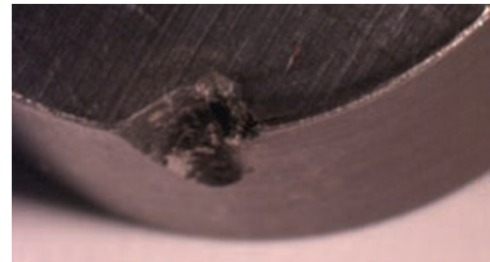
Chipping



Corrective Action

- Utilize stronger grade.
- Consider edge preparation.
- Check rigidity of system.
- Increase lead angle.

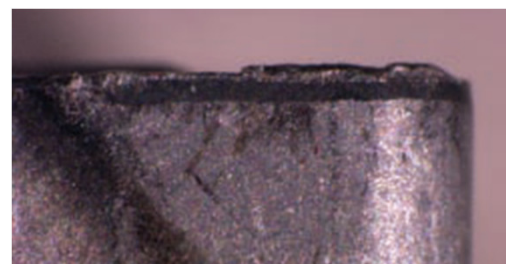
Depth-of-Cut Notching



Corrective Action

- Change lead angle.
- Consider edge preparation.
- Apply different grade.

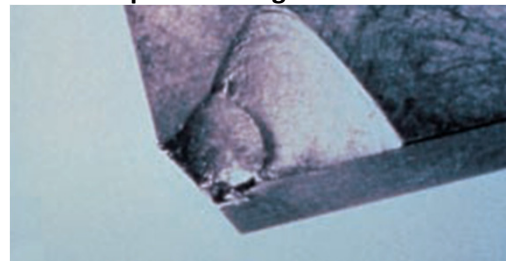
Built-Up Edge



Corrective Action

- Increase speed (sfm/m/min).
- Increase feed rate.
- Apply coated grades or cermets.
- Utilize coolant.
- Edge prep (smaller hone).

Catastrophic Breakage



Corrective Action

- Utilize stronger insert geometry or grade.
- Reduce feed rate.
- Reduce depth-of-cut (doc).
- Check rigidity of system.

*NOTE: Generally, roughing inserts should be indexed when 10 - 15% of insert thickness flank wear is reached. For finishing operations, index at 5 - 10% flank wear or sooner.