All-steel truck and bus radial tyres damage case analysis

Belt delaminating (popular name is crown delaminating)
【feature】the crown has no mechanical damage like stab, cut and strike; there is delaminating between belts, interface is smooth, sometimes, there is wear phenomenon among steel cord.
【reason】Insufficient adhesive force between parts, or not enough rolling, and there is isolation medium.
【responsibility demarcation】Manufacturing reasons.

Crown pierced (injure) delaminating
【feature】crown circumference delaminating, and the area is larger.
【reason】Continue to use after crown pierced by sharp objects, tread water seepage, rust steel wire, lead to crown parts off,
【responsibility demarcation】Use reasons
Crown shock blasting
【feature】Crown gets external impact, belt steel expend outside, no delaminating phenomenon in fracture sections.
【reason】Tire in high pressure, high load and high speed condition, encounter obstacles impact or force over the trench and blasting.
【responsibility demarcation】Use reasons.

Crown cut (sting) blast injury
【feature】Crown was cut, belt fracture, and fracture section has no delaminating phenomenon.
【reason】Tire in high pressure, high load and high speed condition, encounter obstacles impact.
【responsibility demarcation】Use reasons.
Crown compound chip chunking
【feature】the compound of the crown surface fall off partly, even show belt when it is serious.
【reason】Vehicles driving on poor road, when the speed changes or brakes suddenly, tread is bitten off compound block by sharp objects (such as gravel).
【responsibility demarcation】Use reasons.

Crown abnormal wear
【feature】crown irregular wear
【reason】poor road condition and bad driving habit, and don’t change tyres regularly.
【responsibility demarcation】Use reasons.
Tyre shoulder pierced (injure) delaminating
【feature】Tire shoulder pierced and scratch marks, the compound of tyre shoulder is come away with the steel cord.
【reason】when driving, the tyre shoulder is impaled by sharp piercing, the muddy water infiltrated lead to delaminating.
【responsibility demarcation】Use reasons.

Tyre shoulder puncture (wound)
【feature】the tyre shoulder has obvious tear marks or part tear, but has no delaminating sign.
【reason】tyre shoulder is punctured by sharp stabbing or too much stress.
【responsibility demarcation】Use reasons.
Tyre shoulder scratch
【feature】tyre shoulder circumference scratch, even the steel can come out when it is serious.
【reason】when driving, Tires is punctured by sharp objects or mechanical scratch.
【responsibility demarcation】Use reasons.

Shoulder separation
【feature】Shoulder separation parts has no trauma, the compound is come away with the cord in the shoulder part, the interface is smooth after dissected.
【reason】Tyre viscous force is insufficient, between components in the process of manufacturing or bubbles between parts or have isolation medium, gas, etc.
【responsibility demarcation】Manufacturing reasons.
Sidewall empty
【feature】sidewall compound is come away with carcass, sidewall compound is come away with apex, and the plumped parts has no trauma, the interface is relatively smooth after dissecting.
【reason】Tyre has no compaction between components in the process of manufacture, cause bubbles or isolation medium.
【responsibility demarcation】Manufacturing reasons.

Crown pierce caused convex protrusion in the sidewall.
【feature】sidewall has convex phenomenon along the radial direction after inflation, it can also be seen without inflation when serious.
【reason】because the crown is punctured, the carcass steel is damaged, and cracked.
【responsibility demarcation】Use reasons.
Sidewall scratch
【feature】there is obvious scratch marks on the sidewall.
【reason】tyre is scratched by obstacles or mechanical when driving.
【responsibility demarcation】Use reasons.

Sidewall scratch and blast
【feature】the sidewall scratch make the steel crack, blasting hole is bigger with tear shape.
【reason】sidewall is scratch by obstacles or mechanical and then lead to blast when driving.
【responsibility demarcation】Use reasons.
Blasting because of lack of air
【feature】 carcass steel scratch, and the steel endpoint is neat, blast with “zipper-like”. 
【reason】 Low pressure condition make the carcass scratched. 
【responsibility demarcation】 Use reasons.

The carcass is run over when driving lack of air
【feature】 sidewall is uneven, and bead has breach in radial direction, even several breaches when serious. 
【reason】 tyre is driven lack of air, carcass is run over. 
【responsibility demarcation】 Use reasons.
Sidewall radial breach (vulgo wedge slit)
【feature】sidewall radial crack
【reason】sidewall is stroked by external force, and is out of shape and craze.
【responsibility demarcation】Use reasons.

Bead empty
【feature】there is convex phenomenon, but have no deformation.
【reason】in the process of manufacture, there is no compaction between parts, there are bubbles or isolation medium.
【responsibility demarcation】Manufacturing reasons.
Bead split
【feature】there is split along circumference under the assemble line.
【reason】use bad rim, serious overload or frequent turning.
【responsibility demarcation】Use reasons.

Cut bead
【feature】the parts that the bead contact with rim, bead has a cut trace, bead will blast along circumference when serious.
【reason】rim has defects itself, the tyres are cut in using process, or improper rim assemble.
【responsibility demarcation】Use reasons.
Bead blast (Laddering detonation)
【feature】carrass steel cord is out of bead and then blast, and blast to the shoulder.
【reason】use bad rim, serious overload, high air pressure; the speed is too fast when turning, radius is too small, bead produce abnormal heat.
【responsibility demarcation】Use reasons.

Levering bead
【feature】bead is levered, bead toe is levered, chafer steel bareness.
【reason】bead is levered when tyre is dismounted.
【responsibility demarcation】Use reasons.
Bead steel crack

【feature】bead steel crack, steel fracture endpoints have irregular appearance.
【reason】use bad rim or the steel is knocked by external force.
【responsibility demarcation】Use reasons.

Tyre cavity delaminating

【feature】in the inner tyre, there is knot, press with your fingers feel rebound.
【reason】in the process of manufacture, lack of moisture, or have air bubbles or isolation medium between compounds.
【responsibility demarcation】Manufacturing reasons.
Knocked outside and crack inside
【feature】there is crack in the crown, shoulder and sidewall.
【reason】tyre is knocked by external force when in the process of use, and cause crack in the vertical direction.
【responsibility demarcation】Use reasons.