BRAKE PAD PARTNERSHIP

Status of pending California legislation limiting copper in brake pads

October 11, 2009

Bob Peters – Akebono Brake Corporation

Acknowledgements to:

Mark Phipps – Bosch Brake Components

Terry Heffelfinger – Affinia

The Brake Manufacturer's Council

Sustainable Conservation

History

- High levels of copper in the South San Francisco Bay have been a regulatory concern since the 1980s
- Early 1990s: Copper levels in the Bay plateaued and storm water was unexpectedly found to have high levels of copper
- Woodward-Clyde Study (1994) found brake pad wear debris accounted for a significant percentage of copper in urban run-off
  - Study universally viewed as flawed
  - Brake Pad Partnership formed in 1995

The Partnership's Three-fold Purpose

- Determine whether the contribution of copper from brake pads to copper levels in surface waters is substantial, using SF Bay as an example
- Develop methodology that manufacturers can use to evaluate the potential water quality impacts of other brake pad ingredients
- Demonstrate a model approach to solving environmental problems through cooperation and collaboration

Watershed Modeling Results

Watershed modeling results (best estimate):

- In the total SF bay area, ~23% of copper comes from brake pads
- In urbanized watersheds, brake pads can account for up to half the anthropogenic copper draining from the watershed
- In rural watersheds, brake pads account for 5-15% of the anthropogenic copper draining from the watershed
- Non- anthropogenic (mostly in sediment) accounts for about 25% of copper in storm water runoff

SB 346 – Summary of Key Compliance Dates

- Jan 1, 2011 A fee of approximately $1.00 per axle set of friction material on all friction material sold in the State of California (OE and aftermarket).

  A certification method established for friction material sold in California (edge marking code similar to AMECA code is intended)

- Jan 1, 2013 DTSC (California Department of Toxic Substance Control) begins monitoring of Copper, Zinc, Nickel, and Antimony. Monitoring occurs every 3 years (maximum) thereafter. If, on an industry basis usage of any of these 3 materials increases more than 50% above baseline investigation and subsequent regulation may occur.

SB 346 – Summary of Key Compliance Dates – cont'd

- Jan 1, 2014 Friction materials sold in California may not contain more than:
  - 0.01 percent Cadmium and its compounds (by weight)
  - 0.1 percent Chromium (VI) salts (by weight)
  - 0.1 percent Lead and its compounds (by weight)
  - 0.1 percent Mercury and its compounds (by weight)
  - 0.1 percent Asbestiform fibers (by weight)

  All friction material sold in California must be certified and labeled in accordance with the certification method established by DTSC.

- Jan 1, 2021 Friction material sold in California must not exceed 5.0% copper by weight and be certified and labeled in accordance with DTSC method.

- Jan 1, 2032 Friction material sold in California must not exceed 0.5% copper by weight and be certified and labeled in accordance with DTSC method.

Vehicles Affected

Vehicles intended to be affected by brake pad legislation:

- Passenger vehicles
- Light duty trucks
- Commercial vehicles
- Highway on and off heavy duty trucks
- Motorcycles
- Golf carts
- Construction site vehicles (except for ones with sealed oil-immersed brakes which are covered by exemption)
- Industrial site vehicles (e.g. forklifts)*
- Off-road vehicles (e.g. ATVs)
- Racing vehicles

Vehicles not intended to be affected by brake pad legislation:

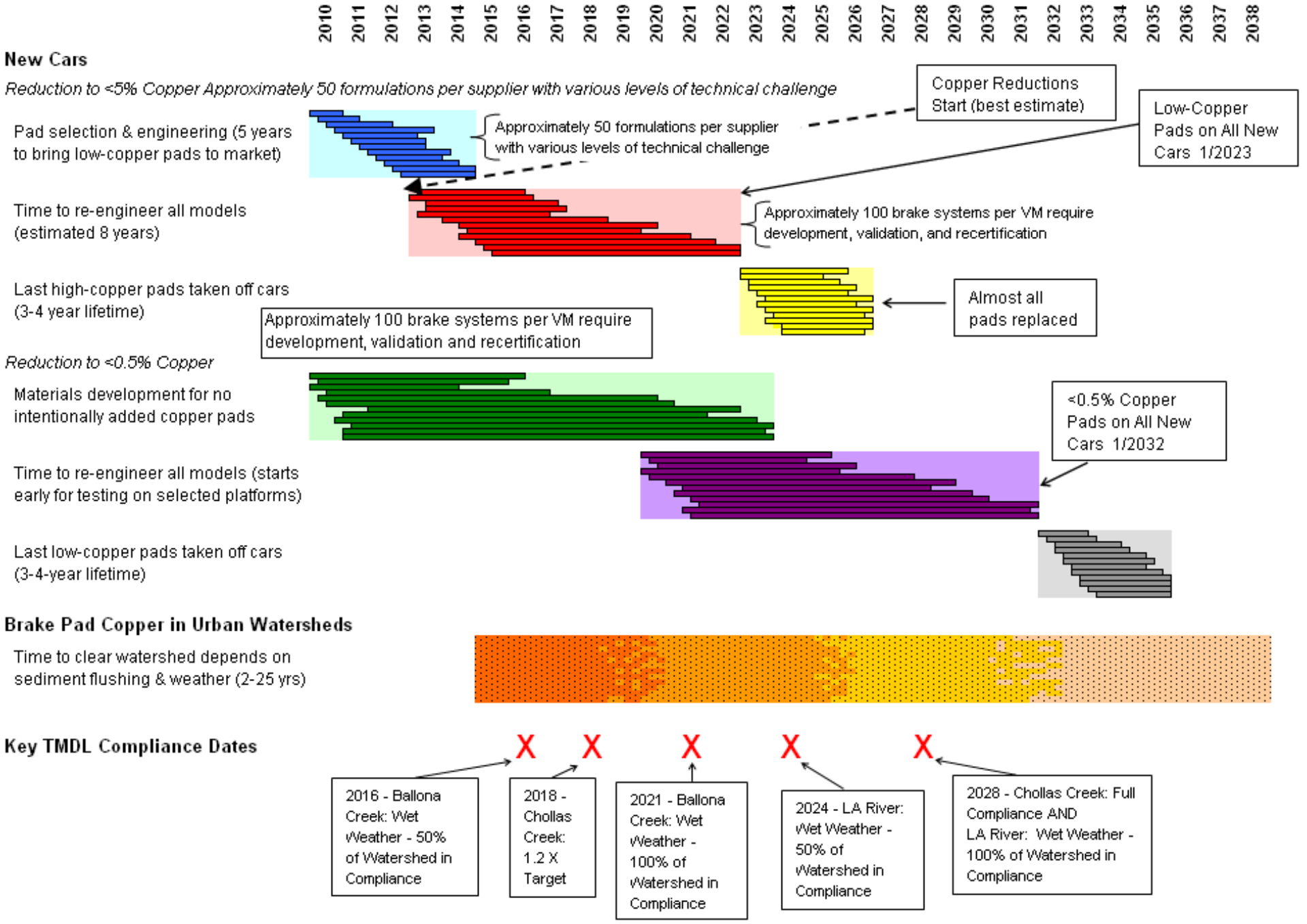
- Airplanes
- Trains
- Human powered vehicles (e.g. bicycles)
- Segways

Exemptions:

- Military combat vehicles
- Vehicles employing internal closed oil immersed brakes (fully contained and emits no copper)
- Static – parking brake only friction material (drum-in-hat and driveline brakes)

Brake Pad Timelines

Tentative legislative proposal 11/12/08



Industry issues

OES Service Material

- Vehicle manufacturers desire a grandfather clause for OES (first equipment) brake pad kits
  - Cost prohibitive to re-certify for out-of-production vehicles
  - Aftermarket segment considers this an unfair advantage
  - Environmentalists would like fewer exceptions
  - Enforcement is problematic.

Fee collection point

- Friction Manufacturers
  - Fee collection burdensome,
  - Can’t control where the product is sold
- Retailers:
  - Many small shops for which collection is burden
  - Likelihood of getting forgotten or neglected is high

Industry Issues – cont'd

Technology

- Need for an "off ramp" in case low copper formulations can't be developed and implemented by 2021 deadline.
- Environmentalists argue that the technology does exist in the form of semi-metallic friction material.

Green Chemistry

- Allow the Green Chemistry process to work instead of continuing to pass single chemical/substance bills.
- GCI process will take some indeterminate amount of time and not allow for the same degree of industry participation as the Brake Pad Partnership has done
  - When copper is finally addressed the timeline for phasing it out could be shorter and less sensitive to industry needs.

California Senate Bill 346 - Status

Held in the California State Assembly's Committee on Environmental Safety and Toxic Materials due to:

- Growing opposition
- insufficient time to either amend or explain the bill to address areas of concern
- California's budget crisis (no new programs)
- "Toxics" committee questions long timeline and complexity of bill.

Legislature returns Jan 2010 (2 year bill cycle)

Industry Options

- Support SB 346
  - With amendments to address the major objections
- Support Green Chemistry Initiative
  - Unknown timing, but expect longer time to address copper and faster implementation once regulation finalized
- Litigation
  - Cascading lawsuits for violation of Clean Water Act: Sierra Club > EPA > Storm water agencies > Vehicle Manufacturers + Brake Manufacturers

Note! Support of the GCI does not provide immunity from potential litigation

THANK YOU!