Selected materials in a passenger vehicle

Selected materials and applications
1 Engine
   Aluminium
   Nickel (turbocharger)
   Tungsten (crankshaft)
2 Microphone / Speaker
   Rare earth elements
   Nickel
   Iron
   Cobalt
3 LED Display
   Rare earth elements
4 Windscreen / Windows
   Glass
5 Interiors
   Leather
   Plastics
6 Catalytic converter
   Palladium
   Plastics
   Rare earth elements
7 Paint / Pearlescent finish
   Mica
   Cobalt
8 Tyres
   Rubber
   Cobalt
9 Wheels
   Graphite (bearings)
   Steel / Iron
   Tungsten (bearings, ball joints)
10 Suspension
    Steel / Iron
11 Chassis
    Aluminium
    Steel / Iron
    Tungsten
12 Body panels
    Steel / Iron
13 Brakes
    Graphite
    Steel / Iron
    Tungsten
14 Transmission
    Nickel
    Steel / Iron
15 Clutch
    Graphite
16 Radiator
    Copper

Materials in applications found throughout a passenger vehicle

Capacitors
   Found in systems for brakes, power steering, transmission, electric motors etc.
   Mica
   Palladium
   Tantalum

Electric motors
   Found in starter motor, alternator, windshield wipers, air conditioning etc.
   Graphite
   Rare earth elements

Plating
   Found on engine parts, brake parts, chassis, trim, air conditioning etc.
   Nickel
   Zinc

Printed circuit boards
   Found in systems for braking, engine control systems, safety and security systems, GPS navigation and entertainment etc.
   Aluminium
   Copper
   Gold
   Nickel
   Solder
   Tin

Circuitry
   Copper
   Gold
   Palladium

Applications found in electric/hybrid cars
Lithium-ion battery
   Cobalt
   Graphite
   Lithium
   Nickel
   Rare earth elements
   Zinc
   (Tin**)

The materials included in this illustration are restricted to the 16 materials profiled in section 5.3 of this report. Applications may vary for specific products and other types of vehicles, and in some instances these materials may be substituted.

* Used to manufacture zinc air fuel cells and nickel-zinc batteries, as alternatives to lithium-ion batteries.
** Tin is an important material in lead-acid batteries, but not in batteries used in hybrid/electric vehicles.

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