

Component	Sample Location	Sample	SEM Main composition	SEM trace composition	FTIR
Fuel control unit	Flow body governor cavity	Black particles	Carbon (C), Oxygen (O), Copper (Cu), Iron (Fe), Tin (Sn), Chromium (Cr), and Aluminum (Al)		Hydrocarbon and ester material.
		White-brown particles	Tungsten (W), Aluminium (Al), Cadmium (Cd)	Iron (Fe), Nickel (Ni)	
	Governor drive body assembly	Beige particles	Aluminum (Al), Tungsten (W), Carbon (C), Oxygen (O)	Silicon (Si), Sulfur (S), and Molybdenum (Mo)	
		Lustrous grey particles	Tungsten (W), with the presence of Aluminum (Al), Silicon (Si), and Iron (Fe).		
		White-grey fibrous material	Carbon (C), Oxygen (O), Aluminum (Al)	Molybdenum (Mo), Sulfur (S), Silicon (Si), Tungsten (W) and Magnesium (Mg).	
		Orange particle	Tungsten (W)	Nickel (Ni), Silicon (Si) and Iron (Fe).	
		Flat grey particle	Tungsten (W), Oxygen (O), and Carbon (C),	Nickel (Ni), Silicon (Si) and Iron (Fe).	
		Black particles	Carbon (C) and Oxygen (O)	Iron (Fe), Phosphorus (P), Potassium (K), Chromium (Cr), Sulfur (S), Molybdenum (Mo), Aluminum (Al) and Silicon (Si)	Aliphatic hydrocarbons and ester material
	Air adapter Px cavity	Main particles	Aluminum (Al), Oxygen (O) and Carbon ©	Tungsten (W), Phosphorus (P) and Sulfur (S)	Aliphatic hydrocarbons and ester material.
		Smaller metallic particles	Cadmium (Cd), Iron (Fe), Oxygen (O) and Chromium (Cr)		
		Other particles	Silicon (Si)	Aluminum (Al), Calcium (Ca) and Iron (Fe)	
	Air adapter Py cavity	Main particles	Carbon (C), Oxygen (O), Aluminum (Al), Silicon (Si), Iron (Fe), Sulfur (S), Molybdenum (Mo), Potassium (K) and Phosphorus (P)		Aliphatic hydrocarbon and ester material.
		Metallic particle 1	Aluminum	Silicon (Si) and Magnesium (Mg)	
		Metallic particle 2	Low alloy steel particles		
		Metallic particle 3	Iron oxide material		
	Air adapter Py port	Main particles	Aluminum (Al), Carbon (C), Oxygen (O), Sulfur (S), Molybdenum (Mo), and Iron (Fe)	Phosphorus (P), Silicon (Si), and Copper (Cu)	
		Other particles	Iron (Fe), Chromium (Cr)		
	Air adapter Px port	Main particles	Aluminum (Al), Carbon (C), Oxygen (O), Silicon (Si), Iron (Fe), Sulfur (S), Molybdenum (Mo)	Phosphorus (P), Calcium (Ca), Magnesium (Mg), and Zinc (Zn)	
		Main metallic particles	Iron oxide material (with the presence of chromium)		
		Particle 1	Aluminum (Al), Carbon (C), and Oxygen (O)		
		Particle 2	Silicon (Si), Oxygen (O), and Carbon (C)		
		Particle 3	Carbon (C), Aluminum (Al), Calcium (Ca), Oxygen (O), Iron (Fe), Sulfur (S), Molybdenum (Mo) and Silicon (Si)		
		Particle 4	Carbon (C), Oxygen (O), Silicon (Si), Aluminum (Al), Zinc (Zn), Iron (Fe)	Phosphorus (P), Sulfur (S), Molybdenum (Mo), Potassium (K) and Calcium (Ca)	
		Greasy material inside the threads			Aliphatic hydrocarbon, ester, and inorganic peaks.
Start Flow control	Start control bypass port	Main particles	Silicon (Si), Aluminum (Al), Oxygen (O), Carbon (C), Potassium (K), and Iron (Fe)	Zinc (Zn), Phosphorus (P) and Lead (Pb)	
	Start control lever shaft (below packing)	Main particles	Aluminum (Al) and Oxygen (O)		
	Start control transfer valve plunger and bore	Main particles	Aluminum (Al) and Oxygen (O)	Iron (Fe), Cadmium (Cd), Titanium (Ti) and Copper (Cu)	
	Start control lever shaft bore	Metallic particle	Aluminum (Al) and Oxygen (O)	Magnesium (Mg), Silicon (Si), Sulfur (S) and Molybdenum (Mo).	
		Red particle	Iron (Fe), Oxygen (O), Silicon (Si), and Aluminum (Al)		Aliphatic hydrocarbon and hydroxide peaks.
		Metallic particle	Aluminum (Al)	Magnesium (Mg)	
Fuel pump	Fuel Pump inlet port	White crystalline material	Carbon (C), Nitrogen (N) and Oxygen (O)		Similar to urea
		Brown substance	Carbon (C), Oxygen (O), Nitrogen (N), Potassium (K), Iron (Fe), Aluminum (Al), Zinc (Zn), Lead (Pb), Sulfur (S), Molybdenum (Mo), and Silicon (Si)	Tin (Sn), Phosphorus (P), Copper (Cu) and Calcium (Ca).	Similar to urea, as well as aliphatic hydrocarbons and inorganic materials
	Inlet strainer	Main composition	Potassium (K), Oxygen (O), Carbon (C), Iron (Fe), Aluminum (Al), Sulfur (S), Molybdenum (Mo), Zinc (Zn), Lead (Pb), Silicon (Si),	Copper (Cu), and Calcium (Ca)	
		Particle 1	Iron (Fe) rich particles with Oxygen (O), Potassium (K), Zinc (Zn), Sulfur (S) and Molybdenum (Mo)		
		Particle 2	Aluminum (Al)	Magnesium (Mg)	
		Particle 3	Carbon (C), Oxygen (O), Potassium (K), Iron (Fe), Zinc (Zn), Lead (Pb), Sulfur (S), Molybdenum (Mo), and Aluminum (Al)		
		Particle 4	Carbon (C), Oxygen (O), Aluminum (Al), and Nitrogen	Sulfur (S), Molybdenum (Mo), Potassium (K), and Chlorine (Cl)	Similar to urea
		Particle 5	Silicon (Si), Carbon (C), Oxygen (O), Aluminum (Al), Potassium (K), Iron (Fe), Zinc (Zn), Sulfur (S) and Molybdenum (Mo)		