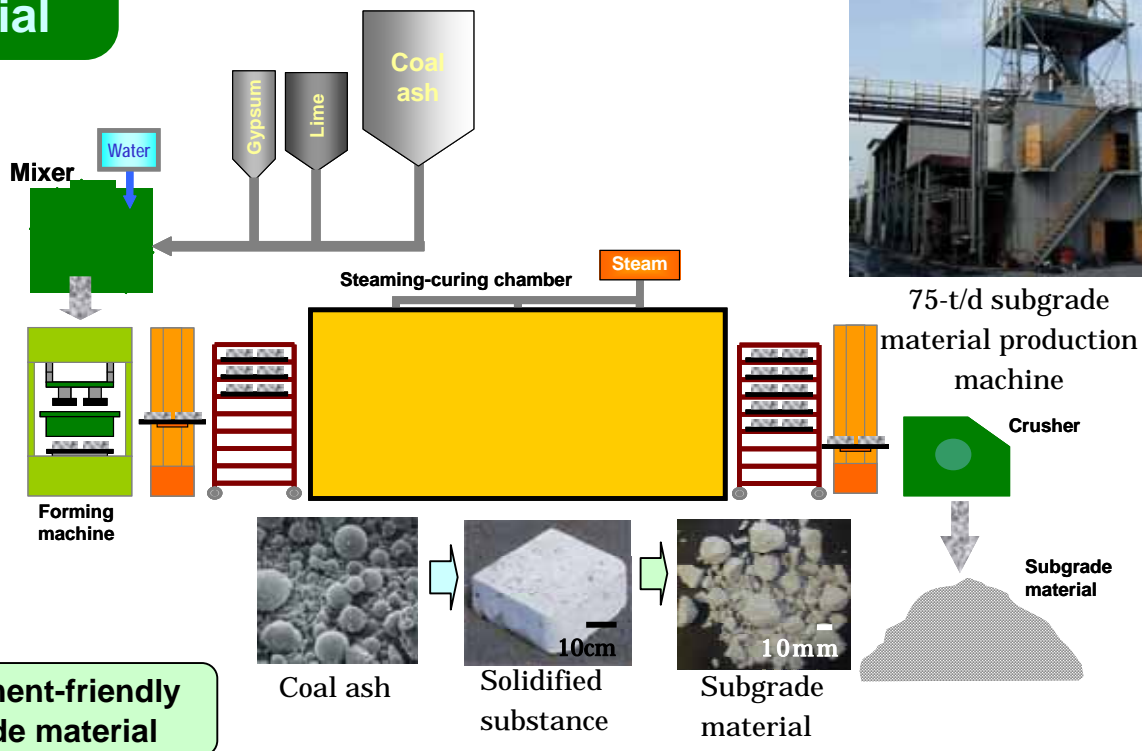


Roadway Subgrade Material



Environment-friendly subgrade material

Controlled substance	Test results				Legal restriction	
	Elution of solidified and crushed coal ash(mg/l)	Raw ash		Soil Contamination Countermeasures Law		
		Content (mg/kg)	Elution (mg/l)	Content (mg/kg)	Elution (mg/l)	
pH	0.0002 or less	1.5 or less	0.005 or less	150 or less	0.01 or less	
Cadmium	0.004 or less	10 - 90	0.04 or less	150 or less	0.01 or less	
Lead	0.03 or less	130 or less	0.5 or less	250 or less	0.05 or less	
Hexavalent chromium	0.003 or less	70 or less	0.7 or less	150 or less	0.01 or less	
Arsenic	0.0005 or less	1.0 or less	0.0005 or less	15 or less	0.0005 or less	
Mercury	0.005 or less	10 or less	0.5 or less	150 or less	0.01 or less	
Selenium	0.2 or less	10 - 300	5.0 or less	4000 or less	0.8 or less	
Fluorine	0.5 or less	50 - 1500	40.0 or less	4000 or less	1.0 or less	

Advantageous characteristics of coal ash as subgrade material

Item		Coal ash subgrade material		Asphalt paving standards/target values	
				Mechanically stabilized crushed stone	Crusher-run
		M-40	C-30	M-40	C-30
Grain size	53 mm	100.0	-	100	-
	37.5 mm	99.7	-	95 - 100	100
	31.5 mm	-	100.0	-	95 - 00
	19 mm	84.7	80.7	60 - 90	55 - 85
	4.75 mm	44.4	44.5	30 - 65	15 - 45
	2.36 mm	26.6	29.5	20 - 50	5 - 30
	0.425 mm	11.3	-	10 - 0	-
	0.075 mm	3.8	-	2 - 10	-
Modified CBR (%)		108.2	113.5	80 or more	20 or more
Abrasion loss (%)		33.0	43.0	50 or less	-
Specific gravity in surface-dry state		1.70	1.60	-	-
Weight of unit volume (kg/l)		0.951	0.902	-	-
Maximum dry density (g/cm ³)		1.113	1.145	-	-
Optimum moisture content (%)		37.0	41.6	-	-