Sustainable Mining & Urban Planning Research · Ödemiş-Emirli Antimony Vein

antimony · exploration · İzmir · 1.8 km² · operator — · survey v1 · 2026-10-09T08:05 UTC

Mineral mapping (SWIR absorption features)

Mineral / alteration	Abundance %	Band nm	Depth	Confidence
stibnite	38.7	900	0.34	0.64
quartz vein	24.3	1400	0.3	0.84
sericite	11.6	2200	0.79	0.84
calcite	17.6	2340	0.55	0.72
pyrite / arsenopyrite	7.8	900	0.5	0.7

Ore grade estimate: 1.38 % Sb

Tailings & acid mine drainage

Acid drainage risk	22.8 / 100 · LOW
Indices	iron-oxide 0.434 · jarosite 0.134 · pH proxy 6.4
Footprint	35.5 ha
Seepage	toward Gediz Delta · 26.6 km · bearing 34° · est. reach 46.7 y
Bands	860–900 nm Fe³□ crystal field · 2265 nm jarosite OH · 1450/1940 nm water

Land-use change (Sentinel-2)

Cover now	mine 8.1 % · vegetation 26.5 % · water 4.3 % · urban 5.8 % · bare 55.3 %
Vegetation 5 y ago	37.3 % → change -10.8 pts
Mine expansion	1.8 ha / yr
Satellite	fallback · vegetation None % · 0 scenes · latest None
Dust / water stress	27.3 / 34.4
Rehabilitation score	83.6 / 100

Urban-planning verdict

Grade	B
Required buffer	3.1 km · nearest settlement 3.0 km · VIOLATED
Zoning	no new residential within buffer; industrial/green belt only
Actions	revegetate 2.4 % of footprint; quarterly hyperspectral monitoring, anchored
Adopted into zoning	not yet

SIMULATED spectral model for mineral/tailings indices (SWIR absorption features); land-use vegetation from live Sentinel-2 scene metadata when available

Provenance

Site anchor	`0xaad0a9a34125e8a48f86c4da1b8943e3b44c5b9a462bda54610733cb95a946f1`
Survey anchor	`0x98a83e05f31997c5cd89575d150645c36ac5cc7b4ccdaf8ec07ce5f8f9d8f6b7`