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Effect of Degradinite on Coal Properties and Its Conversion at Ikeshima Coal Mine

In most of Japan's subbituminous and bituminous coal deposits, the characteristic composition is 95.5% vitrinite group materials (telocollinite and degradinite?), 3% exinite group materials (sporinite, cutinite, and resinite), and a small friction of inertinite group materials (sclerotinite and fusinite). Analysis of the coal at the Ikeshima mine has shown that the quality of the coal is directly related to the vitrinite maceral composition. Thus it is concluded that there can be considerable variation in the quality of coal, depending upon the degradinite content.

1. Degradinite shows higher H/C and n-alkane compared with telocollinite so higher degradinite content results in higher calorific value and volatile content.
2. Vitrinite reflectivity is inversely proportional to degradinite content. This is based on the fact that chemical and physical properties of telocollinite is likely to be controlled by differences in paleogeography and diagenesis.
3. Gieselar maximum fluidity increases exponentially with the increase in degradinite content.
4. Hydrogenation reactions were performed at a reaction temperature of 380°C, hydrogen initial pressure of 30 kg/cm^2 and reaction time of 30 minutes, using a 500 ml batch type autoclave.

The conversion rate increases in proportion to the increase in degradinite content.

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Uranium on Oceanic Side of Circum-Pacific Mobile Belt

Asymmetrical continental margin orogenic belts have superimposed mineralization belts also zoned asymmetrically toward low temperature in the foreland, suggesting orogenic redistribution of crustal metals. The quantity of uranium concentrated into deposits is maximum in a final forelandward zone. High-temperature Th-U concentrations are less prominent in rearward tectonic zones.

Unfavorability of tectonic zones oceanward of the batholith zone, for low-temperature uranium, predicted in 1970, is reviewed as a test of the metallo-tectonic concept, after 12 years of intensive exploration during the price peak.

Of 19 Pacific-margin countries containing island-arc, back-arc-flysch-basin, pluton-in-flysch, or batholith tectonic zones, three aggregate six uranium deposits (four of low temperature), nine prospects, and perhaps ten occurrences. Two more countries have one prospect each. One vein is in island-arc andesite. Two disseminations in basin flysch may represent submarine exhalations. Several high temperature veins are associated with alkaline plutons in flysch, and several high temperature replacement disseminations with "porphyry" copper/molybdenum deposits are known. Many uneconomic high temperature replacement disseminations in alkaline granite are known in the batholith zone. One economic dissemination is in a granite pluton contact zone and two supergene impregnations are in regolith over granite batholith. Several impregnations occur in basin sandstones derived from and overlying granite.

Strongest uranium mineralization in oceanward tectonic zones was associated with cratonization of oceanic rocks.

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Early Environmental Planning for Offshore Oil and Gas Exploration and Production

(No abstract)

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Principal Features of Epithermal Lode Gold Deposits of Circum-Pacific

Production from epithermal primary lode gold deposits along the Circum-Pacific rim exceeds one million ounces annually, from around 20 countries. Distribution of this important deposit type coincides with, and is genetically related to, convergent plate boundaries and the chain of associated volcanic-plutonic activity framing the ocean basin. Deposits are emplaced as clusters along two subparallel belts: the ocean margin transition zone and the zone within the continental framework boundary. Ocean margin deposits are associated with island arc-type intemediate to mafic igneous activity, active geothermal phenomena, and subduction-related regional fracture systems. Deposits inside the continental margin are associated with intermediate to felsic volcanic-plutonic belts and exhibit block faulting or volcano-tectonic fracture control. They feature strong Pb-Zn-Ag and local S-W metal associations. Within both belts, a continuum exists between near surface hot spring deposits, local disseminated replacement (Carlin-type) deposits, and deeper bonanza systems. Hot spring and replacement deposits feature relatively high Au:Ag ratios, contain micron-sized gold particles, are enriched in Hg-As-Sb-Ba, and are hosted by hydrofracted quartz-pyrite stockworks or fine-grained carbonaceous limestones. Bonanza deposits are characterized by polymetallic veins and stockworks. Economic concentrations require initial high gold solubility, unrestricted recharge of meteoric water into a region of steady high heat flow, fracture-controlled fluid focusing, and either host-rock reactivity or episodic self-sealing, with explosive pressure release in the zone of deposition. Boiling, temperature decrease, solution oxidation and local ground-water mixing are the primary processes of ore deposition. Modern-day analogs of such ore forming systems exist in New Zealand, Japan, western USA, Indonesia, and the Philippines, among others.

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Main Features of Kuril-Kamchatka Deep-Sea Trench Tectonics and Geologic Development

The upper crust structure of the Kuril-Kamchatka deep-sea trench and continental slope is a system of horst-anticlinorial uplifts of the acoustic basement and separating them partially are compensated graben-synclinorial troughs stretching in the northeastern direction according to the trench general trend.

From dredging data the acoustic basement rock associations of the horst-anticlinorial uplifts of the trench continental slope are pre-Neogene (Late Cretaceous and older) complexes of the deformed geosynclinal volcanogenic and sedimentary deposits broken by gabbroids, granodiorites, and granitoids. Graben-synclinal troughs are filled with sedimentary deposits mainly of the Neogene-Quaternary ages, the thickness of which in some basins exceeds 1.8 mi (3 km).

The oceanic slope of the trench is composed of the sedimen-