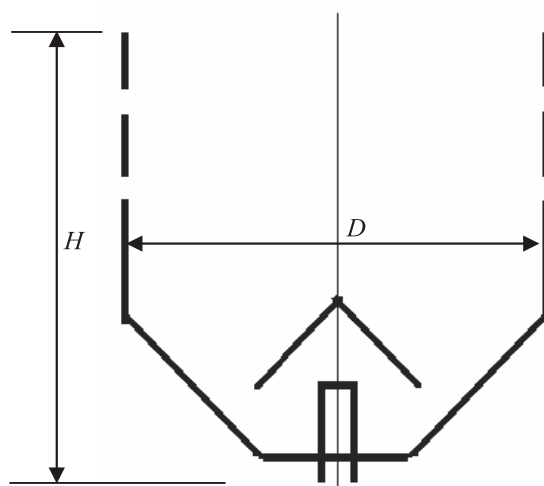


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SIMULATION OF MASS-TRANSFER PROCESS IN POROUS MEDIA WITH COMPLEX SHAPE

Some rare minerals and metals are extracted by underground leaching. Thus sorption extraction of minerals on mass-transfer devices with use ion-exchange resin is the most widespread method of productive solutions processing. Now wide application finds sorbing device which represents the cylindrical column, filled by a layer of ion-exchange resin in the form of spherical porous granules. Through a column from below upwards with the filtration velocity the solution containing sorbing a mineral is pumped over. Velocity of solution admission is calculated off on kinetic parameters. A cone barrier located before a submitting pipe is intended for achievement of uniform distribution of a solution across a column.



Scheme of sorbing device

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On an output from a column through certain time tests of a solution which are analyzed on the maintenance in them of mineral are selected. Sorption proceeds until concentration of mineral on an outlet from a column will not be equal some admissible value. After that the saturated layer of a sorbent being below by a mineral is unloaded. Sorbing device from above is supplemented with a fresh sorbent and process repeats.

There are some questions, a degree of an involvement of a sorbent in mass-transfer process (especially, in a transverse direction of a column) and change of column resistance depending on the size and forms of cone barrier, influence of dispersive and kinetic characteristics on thickness of the saturated layer.