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(54) Title: METHOD OF PRODUCING INORGANIC HYDRAULIC BINDERS

(57) Abstract: Method of producing binders for building and building products consisting in that a material of man-made and/or natural origin from a set comprising solid products produced by burning of solid fuels, metallurgical slag, ground fire products, products from burnt out mining deep stock piles after mining of fossil fuels, glass production waste, ceramic production waste, brick and concrete construction waste, heat-activated clays, low-crystalline pyroclastic rocks, sedimentary laterite, bauxite, opalolite, allophanolite, diatomite rocks, limestones and claystones and clays, is subjected to physical treatment consisting in action of a power pulse, during which mechanical energy E_k is passed on to the particles of the material treated by acting of a force of the size from 50 to $3 \cdot 10^5$ N, related to 1 g of the treated material, during a very short time in the range from $1 \cdot 10^{-6}$ to $1 \cdot 10^{-2}$ s or more subsequent pulses that cause passing on of mechanical energy E_k to grains of the material treated and/or passing on of magnetic energy E_m to its grains together with passing on of mechanical energy and/or after it by means of alternate and/or variable magnetic field having frequency from $15 \cdot 10^1$ to $15 \cdot 10^6$ Hz and intensity from 10^{-2} to 10^3 T, which acts on particles of the ferromagnetic substances if they are present in the treated material and/or on charges in defects of grains of the material, which defects were produced as a result of passing on of mechanical energy, what is having as consequence that the internal energy of the material treated is increasing, the particles of which are becoming more fine at least to 200 micrometers, and simultaneously re-aggregation of its particles is prevented, and chemical reactivity of the material treated is increased to obtain dry binder and/or dry building material and/or water is added in the quantity from 8.20 to 420% by weight, based on weight of the material treated to obtain formable wet binder and/or formable wet material, which can be formed to the desired form of products and/or hardened by autoclaving and/or dry warming up.



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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 470 948 A2 (KOEHLER PAVLIK JOHANN [AT]) 12 February 1992 (1992-02-12) * abstract page 1, line 1 - page 18, line 30 claims 1-8	1-7
X	GB 2 006 737 A (SIMMERING GRAZ PAUKER AG) 10 May 1979 (1979-05-10) * abstract page 1, line 6 - page 3, line 85 claims 1-22	1-7
X	CN 101 053 870 A (MIANYANG RENZHI PETROLEUM & CH [CN]) 17 October 2007 (2007-10-17) * abstract	1-7
	-/-	
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SOBOLEV, KONSTANTIN: "Mechano-chemical modification of cement with high volumes of blast furnace slag", CEMENT & CONCRETE COMPOSITES, no. 27, 29 March 2005 (2005-03-29), pages 848-853, XP002617961, * abstract column 1, line 1 - column 5, line 12 -----	1-7
A	SU 1 616 872 A1 (MO LESOTEKH INST [SU]) 30 December 1990 (1990-12-30) * abstract column 1, line 1 - column 4, line 25 -----	1-7
A	LUDWIG LEINEWEBER: "KOMPAKTIERUNG VON DEPONIE-SCHUTTGUTERN UND RUCKSTANDEN AUS DER RAUCHGASREINIGUNG", MUELL UND ABFALL, ERICH SCHMIDT VERLAG GMBH & CO, BERLIN, GERMANY, vol. 26, no. 2, 1 February 1994 (1994-02-01), pages 73-77, XP000423355, ISSN: 0027-2957 page 73, column column 1, line 32 - page 77, column 1, line 2 -----	1-7

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/CZ2009/000074

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0470948	A2	12-02-1992	AT 394712 B 10-06-1992
		CS 9102415 A3 19-02-1992	
		ZA 9106213 A 28-04-1993	

GB 2006737	A	10-05-1979	AU 4009578 A 27-03-1980
		DE 2827912 A1 19-04-1979	
		FR 2405796 A1 11-05-1979	
		NL 7810262 A 18-04-1979	
		ZA 7805766 A 31-10-1979	

CN 101053870	A	17-10-2007	NONE

SU 1616872	A1	30-12-1990	NONE
