



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS H 8200 : 2006

(JTSS/JSA)

Thermal spraying terms

ICS 01.040.25; 25.220.20

Reference number : JIS H 8200 : 2006 (E)

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Thermal Spraying Society (JTSS)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS H 8200** : 1998 is replaced with this Standard.

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Date of Establishment: 1986-03-25

Date of Revision: 2006-02-20

Date of Public Notice in Official Gazette: 2006-02-20

Investigated by: Japanese Industrial Standards Committee

Standards Board

Technical Committee on Non-Ferrous Metals

JIS H 8200 : 2006, First English edition published in 2006-12

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

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Printed in Japan

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Thermal spraying terms

1 Scope This Japanese Industrial Standard specifies terms used for thermal spraying.

2 Classification The thermal spraying terms shall be classified into the following seven categories.

- a) General
- b) Materials and equipment
- c) Surface preparation
- d) Application
- e) Post treatment
- f) Inspection and tests
- g) Safety and hygiene

3 Definitions For the purposes of this Standard, the following definitions apply. Further, English equivalent are shown for reference.

NOTE : If a term includes a bracketed word, the term can be used either with or without the bracketed word.

a) **General**

No.	Term (Japanese character)	Reading	Definition	English equivalent (informative)
1001	溶射	YÔSYA	to build up coating on the substrate surface, by spraying thermal spraying material that has been brought into the condition, by combustion or electric energy, of fused or nearly fused particles	thermal spraying
1002	ガス式溶射	GASUSIKI YÔSYA	generic term of thermal spraying using energy of combustion flame or detonation of oxygen and combustible gas For the oxygen fuel spraying, there are flame spraying and detonation flame spraying.	oxygen fuel spraying
1003	フレーム溶射	HURÊMU YÔSYA	thermal spraying in which wireform, rodform or powdered thermal spray material is heated to fused or nearly fused condition using combustion flame of oxygen and combustible gas and is sprayed to build up coating on substrate surface Sometimes jet of compressed air is used for acceleration of spraying particles. For flame spraying, there are wire flame spraying, rod flame spraying, powder flame spraying, and high velocity flame spraying.	flame spraying
1004	溶線式フレーム溶射	YÔSENSIKI HURÊMU YÔSYA	flame spraying making use of wireform thermal spray material	wire flame spraying
1005	溶棒式フレーム溶射	YÔBÔSIKI HURÊMU YÔSYA	flame spraying making use of rodform thermal spray material	rod flame spraying
1006	粉末式フレーム溶射	HUNMATUSIKI HURÊMU YÔSYA	flame spraying making use of powdered thermal spray material	powder flame spraying
1007	高速フレーム溶射	KÔSOKU HURÊMU YÔSYA	a kind of flame spraying method using combustion flame as heat source By raising pressure of combustion chamber, high speed flame which is continuous but equivalent to detonation flame is generated.	high velocity flame spraying

No.	Term (Japanese character)	Reading	Definition	English equivalent (informative)
1008	爆発溶射	BAKUHATU YÔSYA	thermal spraying in which detonation energy of mixed gas of oxygen and combustible gas (acetylene and the like) in thermal spray gun is used to spray the thermal material at high speed to build up coating on substrate	detonation flame spraying
1009	電気式溶射	DENKISIKI YÔSYA	generic term of thermal spraying using electric energy For the electric spraying, there are electric arc spraying, plasma spraying, wire explosion spraying and laser spraying.	electric spraying
1010	アーク溶射	ÂKU YÔSYA	thermal spraying in which two metallic wires are fused by arc discharge generated between them and then atomized by compressed air to be sprayed onto the substrate material to form a coating	electric arc spraying, arc spraying
1011	プラズマ溶射	PURAZUMA YÔSYA	thermal spraying in which plasma jet generated by energization of inert gas is used to spray the thermal spray material to form a coating on the substrate material Thermal spray material is mainly powdered. For plasma spraying, there are method using argon, helium, nitrogen, hydrogen, etc., as for operating gas, and water stabilized plasma spraying using oxygen ion and hydrogen ion generated by cracking of water.	plasma spraying
1012	水プラズマ溶射	MIZU PURAZUMA YÔSYA	plasma spraying making oxygen ion and hydrogen ion as operating gas generated by thermally cracking, by arc, the water supplied into plasma spraying gun	water stabilizer plasma spraying, liquid-stabilized plasma spraying
1013	線爆溶射	SENBAKU YÔSYA	thermal spraying in which instantaneous passing current is applied to thermal spray material of metallic wire, making it fuse and scatter explosively, the fine grains of which are sprayed to build up coating on substrate material	wire explosion spraying
1014	レーザー溶射	RÊZA YÔSYA	thermal spraying of laser heat source using the materials of rod and wire shape	laser spraying

No.	Term (Japanese character)	Reading	Definition	English equivalent (informative)
1015	減圧溶射	GEN'ATU YÔSYA	thermal spraying to be executed in the ambience of which pressure is lower than atmospheric pressure	low pressure spraying
1016	亜鉛溶射	AEN YÔSYA	thermal spraying to be executed by using zinc as thermal spraying material (see JIS H 8300) It is used mainly to prevent corrosion of iron and steel structures.	zinc spraying
1017	アルミニウム溶射	ARUMINIUMU YÔSYA	thermal spraying to be executed by using aluminium as thermal spray material (see JIS H 8300) It is used mainly to prevent corrosion of iron and steel structures.	aluminium spraying
1018	亜鉛-アルミニウム合金溶射	AEN-ARUMINIUMU GÔKIN YÔSYA	thermal spraying to be executed by using zinc-aluminium alloy as thermal spraying material (see JIS H 8300) It is used mainly to prevent corrosion of iron and steel structures.	zinc-aluminium alloy spraying
1019	アルミニウム-マグネシウム合金溶射	ARUMINIUMU-MAGUNESTUMU GÔKIN YÔSYA	thermal spraying executed using aluminium-magnesium alloy (see JIS H 8300) It is used mainly to prevent corrosion of iron and steel structures.	aluminium-magnesium alloy spraying
1020	肉盛溶射	NIKUMORI YÔSYA	thermal spraying for build up to recover worn part or insufficient dimensions of substrate (see JIS H 8302)	cladding by spraying, build up spraying
1021	自溶合金溶射	ZIYÔ GÔKIN YÔSYA	thermal spraying using self-fluxing alloy as thermal spray material (see JIS H 8303) Mainly used for improving wear resistance, corrosion prevention and heat resistance of iron and steel materials.	self-fluxing alloy spraying
1022	セラミックス溶射	SERAMIKKU YÔSYA	thermal spraying using ceramics as thermal spray material (see JIS H 8304) Mainly used for giving wear resistance, heat resistance, adiabatic property and chemical resistance for machine parts, etc.	ceramic spraying

No.	Term (Japanese character)	Reading	Definition	English equivalent (informative)
1023	サーメット溶射	SÂMETTO YÔSYA	thermal spraying using material consisting of metal and ceramics as thermal spray material (see JIS H 8306)	cermet spraying
1024	プラスチック溶射	PURASUTIKKU YÔSYA	thermal spraying using plastics as thermal spray material (see JIS K 6766).	plastic spraying
1025	酸化アルミニウム溶射	SANKA ARUMINIUMU YÔSYA	thermal spraying for forming coating by using alumina as thermal spray material	alumina spraying, aluminium oxide spraying
1026	酸化アルミニウム・酸化チタン溶射	SANKA ARUMINIUMU SANKA TITAN YÔSYA	thermal spraying for forming coating by using a mixture of oxide of aluminium (alumina) and oxide of titanium (titania), oxide of compound of aluminium and titanium, and their composite	alumina-titania-spraying, aluminium oxide-titanium oxide spraying
1027	酸化チタン溶射	SANKA TITAN YÔSYA	thermal spraying to build up a coating by using oxide of titanium (titania) as thermal spraying material	titania spraying, titanium oxide spraying
1028	酸化クロム溶射	SANKA KUROMU YÔSYA	thermal spraying to build up a coating by using oxide of chromium (chromia) as thermal spray material	chromia spraying, chromium oxide spraying
1029	スピネル溶射	SUPINERU YÔSYA	thermal spraying to build up a coating by using a material having a spinel structure (alumina + magnesia) as thermal spray material (see JIS H 8304)	spinel spraying, (Al ₂ O ₃ ・MgO) spinel spraying
1030	酸化ジルコニウム溶射	SANKA ZIRUKONIUMU YÔSYA	thermal spraying to build up a coating by using oxide of zirconium (zirconia) as thermal spray material	zirconia spraying, zirconium oxide spraying
1031	金属溶射	KINZOKU YÔSYA	thermal spraying using metals as thermal spray materials	metal spraying
1032	防食溶射	BÔSYOKU YÔSYA	thermal spraying to prevent corrosion of substrate metal	spraying for corrosion prevention
1033	防せい溶射	BÔSEI YÔSYA	thermal spraying to prevent generation of rust on substrate metal	spraying for rust prevention
1034	内面溶射	NAIMEN YÔSYA	thermal spraying to be executed on an inner surface of pipe, cylinder or the like	inside spraying, internal spraying

No.	Term (Japanese character)	Reading	Definition	English equivalent (informative)
1035	複合溶射	HUKUGÔ YÔSYA	thermal spraying to build up coating by carrying out thermal spraying with not less than 2 kinds of thermal spray materials simultaneously	composite spraying
1036	耐磨耗溶射	TAIMAMÔ YÔSYA	thermal spraying to build up wear resistant coating	wear resistant spraying
1037	耐食溶射	TAISYOKU YÔSYA	thermal spraying to build up a coating having corrosion resistance	corrosion resistant spraying, spraying for corrosion resistance
1038	補修溶射	HOSYŪ YÔSYA	thermal spraying for repair by forming sprayed coating on damaged material (part) or the like	repair by thermal spraying, maintenance by spraying
1039	耐熱溶射	TAINETU YÔSYA	thermal spraying to build up heat resistant coating	heat resistant spraying
1040	高温酸化防止溶射	KÔON SANKABÔSI YÔSYA	thermal spraying to prevent high temperature oxidation	spraying for high temperature oxidation prevention
1041	耐熱衝撃溶射	TAINETU SYÔGEKI YÔSYA	thermal spraying for forming a coating superior in thermal shock resistance	spraying for thermal shock resistance coating
1042	断熱溶射	DANNETU YÔSYA	thermal spraying to build up adiabatic coating	heat insulate spraying
1043	ガス透過溶射	GASU TÔKA YÔSYA	thermal spraying executed for the purpose of forming a porous coating of high gas permeability	spraying for high permeability coating
1044	絶縁溶射	ZETUEN YÔSYA	thermal spraying executed for the purpose of forming a coating superior in electric insulation	spraying for electric insulation
1045	熱伝導溶射	NETU DENDÔ YÔSYA	thermal spraying executed for the purpose of forming a coating superior in thermal conduction	spraying for thermal conduction coating
1046	電気伝導溶射	DENKI DENDÔ YÔSYA	thermal spraying executed for the purpose of forming a coating superior in electrical conduction property	spraying for electrical conduction coating
1047	熱遮へい溶射	NETU SYAHEI YÔSYA	thermal spraying executed for the purpose of forming a coating with high thermal emissivity for minimizing the heat transmittance to the substrate	spraying for thermal barrier coating

No.	Term (Japanese character)	Reading	Definition	English equivalent (informative)
1048	傾斜組成溶射	KEISYA SOSEI YÔSYA	thermal spraying of the construction in which the structure of the spraying materials of different coefficient of thermal expansion are composed gradually in order to release the stress of the coating It is called ZENHEN YÔSYA as well.	graded compositional coating
1049	溶射成形	YÔSYA SEIKEI	thermal spraying to form spray deposit on the mould to which parting agent has been applied and to make mouldings by separating the deposit from the mould	spray forming
1050	プラズマジェット	PURAZUMA ZYETTO	high temperature-high speed gas current made by jetting the plasma generated by gas discharge from a nozzle	plasma jet
1051	素地	SOZI	the surface of the substrate material to be given thermal spraying Also called "HIYÔSYAMEN".	substrate surface
1052	溶射粒子	YÔSYA RYÛSI	particle of thermal spray material, sprayed under fused or nearly fused condition	spray particle
1053	未溶融粒子	MIYÔYÛ RYÛSI	particle not melted completely yet in the thermal source of the spraying	unmelted particle
1054	粒度	RYÛDO	the size of particle of powder material such as grit which is measured by an appropriate means, for example, test sieve or others (see JIS Z 2500)	particle size
1055	溶射皮膜	YÔSYA HIMAKU	coating build up by thermal spraying	spray deposit, sprayed coating
1056	塗装用下地溶射皮膜	TOSÔYÔ SITAZI YÔSYA HIMAKU	sprayed coating to be applied before painting to maintain rust • corrosion preventing effect of iron and steel substrate for a long term	undercoating for painting
1057	酸化皮膜	SANKA HIMAKU	coating formed by an oxidation phenomenon on the surface of metal and alloy	scaling

No.	Term (Japanese character)	Reading	Definition	English equivalent (informative)
1058	ボンドコート	BONDO KÔTO	coating to be built up for improvement of adhesion of sprayed coating A kind of undercoat.	bond coat
1059	アンダコート	ANDA KÔTO	coating of the lowest layer in the case of building up sprayed coatings of 2 or more classes To be applied for improvement of adhesion of coating, to secure coating thickness and protect substrate surface. Also named undercoating.	undercoat
1060	粒子間結合度	RYÛSIKAN KETUGÔDO	degree of cohesion between particles constituting sprayed coating	degree of cohesion between particles
1061	投びょう効果	TÔBYÔ KÔKA	effect to improve degree of adhesion between coating and substrate by mechanical engaging of sprayed particles with rough substrate surface	anchoring effect
1062	合金層	GÔKINSÔ	layer of alloy generated at boundary of sprayed coating and substrate by thermal spraying or subsequent heat treatment, etc.	alloy layer
1063	付着量	HUTYAKURYÔ	mass of sprayed coating, built up per unit area	mass of deposit per unit area
1064	付着力	HUTYAKURYOKU	physical strength wherein sprayed coating is bonded to substrate	adhesion strength, bonding strength
1065	密着性	MITTYAKUSEI	combined condition of sprayed coating and substrate	adhesiveness
1066	密着度	MITTYAKUDO	degree of adhesion of sprayed coating and substrate	degree of adhesion
1067	中間層	TYÛKANSÔ	coating to be built up between undercoat and topcoat	intermediate layer
1068	トップコート	TOPPU KÔTO	the uppermost layer, in the case of building up sprayed coating of 2 or more layers	topcoat
1069	溶着金属	YÔTYAKU KINZOKU	coating of metal, deposited on the substrate by thermal spraying	fused metal spray deposit

No.	Term (Japanese character)	Reading	Definition	English equivalent (informative)
1070	拡散浸透層	KAKUSAN SINTÔSÔ	layer with component element of sprayed coating diffused on substrate by heat treatment, after thermal sprayed	diffusion layer
1071	アブレイダブル皮膜	ABUREIDABURU HIMAKU	generic term of sprayed coating having easily abradable property Used for adjustment of clearance between parts.	abradable coating
1072	溶射溶着	YÔSYA YÔTYAKU	to fuse the spray deposit which is remelted after thermal spraying with the substrate	spraying and fusing
1073	溶さい(滓)の付着	YÔSAI NO HUTYAKU	adhesion of oxide composed by silicon anhydride, silicon, etc. after fusion treatment of self-fluxing alloy spray deposit	attachment of slag
1074	溶射有効面	YÔSYA YÛKÔMEN	in sprayed coating, important surface for use	significant surface
1075	溶射加工品	YÔSYA KAKÔHIN	goods or parts forming sprayed coating	spraying product, sprayed product
1076	溶射加工品仕様書	YÔSYA KAKÔHIN SIYÔSYO	a specification wherein a means or a method of processing, or quality, etc. of products to have been thermally sprayed are given	specification of sprayed product
1077	溶射加工品規格	YÔSYA KAKÔHIN KIKAKU	standard for determining the shape, material, method, etc. of products and parts to have been thermally sprayed	standard of sprayed product
1078	マスキング	MASUKINGU	covering in order to prevent sticking of spray particle to parts that are not specified parts to be processed, and to protect the substrate from being damaged by blasting in execution of thermal spraying	masking
1079	気孔	KIKÔ	void contained in sprayed coating There are open pores and closed pores.	pore
1080	開口気孔	KAIKÔ KIKÔ	pore contained in sprayed coating leading to outside	open pore
1081	密閉気孔	MIPPEI KIKÔ	pore contained in sprayed coating, closed in the coating	closed pore
1082	気孔率	KIKÔRITU	volume percentage of pores in sprayed coating	porosity

No.	Term (Japanese character)	Reading	Definition	English equivalent (informative)
1083	腐食生成物	HUSYOKU SEISEIBUTU	substances generated by corrosion Usually, indicating a solid, it adheres on coating or disperses in environment. White rust generated on zinc sprayed coating is one example.	corrosion product
1084	腐食剤	HUSYOKU ZAI	special chemical reagent for identifying the phase composing metal and alloy	etchant
1085	腐食応力	HUSYOKU ÔRYOKU	stress generated by corroding reaction	corrosion stress
1086	耐食性	TAISYOKU SEI	durability of spray deposit under various type of corrosion environment Many types of test method are used.	corrosion resistance
1087	テルミット反応による スパークキング	TERUMITTO HANNÔ NIYORU SUPÂKINGU	phenomenon of heat generation caused by oxidation reaction generated suddenly on coating surface	thermite sparking
1088	断熱皮膜	DANNETU HIMAKU	sprayed coating to be built up for adiabatic purpose	thermal barrier coating (TBC)

b) **Materials and equipment**

No.	Term (Japanese character)	Reading	Definition	English equivalent (informative)
2001	溶射装置	YÔSYA SÔTI	equipment to build up sprayed coating by various thermal spraying methods	thermal spraying equipment
2002	溶射ガン	YÔSYA GAN	principal part of thermal spraying equipment having mechanism to inject thermal spray material by fusing Also called "thermal spraying torch".	thermal spraying gun