
Thermal spraying — Powders —
Part 2:
Comparison of coating performance
and spray powder chemistry

Projection thermique — Poudres —

Partie 2: Comparaison de l'enduit performance et poudre chimie

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Foreword

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This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*.

This first edition of ISO 14232-2, together with ISO 14232-1:2017, cancels and replaces ISO 14232:2000, which has been technically revised.

A list of all parts in the ISO 14232 series can be found on the ISO website.

Introduction

The performance of a sprayed coating is one of the major factors for its industrial application. However, the chemical composition or chemistry of the sprayed powder is not always the key information for the actual coating application. Understanding the relationship between the chemical composition/chemistry of the sprayed powder and the resulting coating performance allows for the most effective selection of powder to obtain the required coating performance.

This document provides technical information describing the comparison of spray powder chemistry and coating performance. Spray coating performances are extremely diverse. This document examines the performances of wear resistance and corrosion resistance. Other performance categories are in preparation.

The ISO 14232 series consists of two parts. ISO 14232-1 examines the characterization of spray powders. This document is a technical report that examines how technical literature describes the application of powders.

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Thermal spraying — Powders —

Part 2:

Comparison of coating performance and spray powder chemistry

1 Scope

This document gives guidelines for selecting the powder chemistry or composition for obtaining an objective coating performance.

It provides comparisons of coating performance for wear resistance ([Table 1](#)) and corrosion resistance ([Table 2](#)) to spray powder chemistry/composition. The wear types shown in [Table 1](#) are abrasive, adhesive, chemical, erosion, fretting, impact, rolling and sliding. The corrosion types shown in [Table 2](#) are acid/alkaline/salt, atmospheric, biochemical, biological, chemical agent, chemicals in food, combustion gas, sea water, fresh water, molten metal, molten salt, non-aqueous solution, soil, steam and miscellaneous. The tables give the coating chemistries and describe the composition of spray powder of metals/alloys, ceramics and cermets. The guidelines have been produced on the basis of academic literature, in particular the *Journal of Thermal Spray Technology* and the *Proceedings of the International Thermal Spray Conference*.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Comparison table of wear resistance and spray powder chemistry

Table 1 — Comparison of wear resistance and spray powder chemistry

Type of wear	Metals	Ceramics	Cermet
Abrasive	316L[75]	Al ₂ O ₃ [6][8][16][74][77][80][93][96]	Al ₂ O ₃ -Ni[77][80]
	Amorphous ferrochromes[9]	Al ₂ O ₃ -TiO ₂ [24][64][99]	Al-SiC[10]
	Co-based self-fluxing alloy[100]	Al ₂ O ₃ -ZrO ₂ [80]	Carbide cermet[9]
	Cobalt alloys[9]	Cr ₂ O ₃ [8][54][73][74][75][93][94][99]	Cr ₃ C ₂ -NiCr[37][42][52][55][62][73][74][75][85][99][69]
	Fe-13Cr-7Ni-4B-5W-0,2C[30]	TiO ₂ [6][28][54][96]	Cr ₃ C ₂ -NiCr-SFA[67]
	Fe-40Al-0,05Zr[31]	ZrO ₂ -Y ₂ O ₃ [6][54]	FeNiAlCr-TiC-Al ₂ O ₃ [70]

Table 1 (continued)

Type of wear	Metals	Ceramics	Cermet
	FeCrMoWMnBCSi[87] FeCrNi[99] Fusible[9] Inconel 625[55] Mo alloys[9] Ni-21Cr-8,3Mo-5Fe-1,2Nb-Ti[29] NiCr[51] NiCrSiB[11][50][75][99][107] Stellite 6[50] Stellite-21[42]		Ni-based cermet[92] Ni 60[60] NiCrSiB-WC-Co[99] NiWC25[60] NiWC35[60] SiC cermet[57] TiC-SFA[56] VC-WC-CoCr[74] WC cermet[61] WC-Co[1][3][5][11][15][17][22][37][48] [49][63][65][66][68][69][74][75][85][99] [101][104] WC-CoCr[13][42][48][49][55][58][69][73] [74] [84][85][99] WC-Ni[69]
Adhesive	Fe-0,8C[34] Fe-19Cr-0,1C-1,6B[34] FeCrMoWMnBCSi[88]	Al ₂ O ₃ [74][98] Cr ₂ O ₃ [74][81][103] TiO ₂ [28]	Al ₂ O ₃ -Al[97] Cr ₃ C ₂ -NiCr[37][74][103] FeB-BN[102] MoS ₂ cermet[59] VC-WC-CoCr[74] WC-Co[5][37][74][89] WC-CoCr[41][74][103]
Chemical	Inconel 625[55]	Al ₂ O ₃ -TiO ₂ [64]	Cr ₃ C ₂ -NiCr[55][85] WC-Co[85] WC-CoCr[41][55][85]
Erosion	Fe-0,8C[34] Fe-19Cr-0,1C-1,6B[34] Fe-40Al-0,05Zr[31] FeCrMoWMnBCSi[88] Inconel 625[55] NiCrSiB[11] NiCrSiFeB[21]	Cr ₂ O ₃ [94] TiO ₂ [28] ZrO ₂ -5CaO[4] ZrO ₂ -Y ₂ O ₃ [4][18][82]	Cr ₃ C ₂ -NiCr[52][55][62][69] Cr ₃ C ₂ -NiCr-SFA[67] FeNiAlCr-TiC-Al ₂ O ₃ [70] Ni60[60] NiWC25[60] NiWC35[60] SiC cermet[57] TiC-SFA[56] WC cermet[61] WC-Co[3][4][5][11][21][22][38][49][63] [69][95] WC-CoCr[21][49][55][58][69] WC-CoFe[21] WC-Ni[69]
Fretting	CuNiIn[91]		Cr ₃ C ₂ -NiCr[69] WC-Co[69][89] WC-CoCr[69] WC-Ni[69]

Table 1 (continued)

Type of wear	Metals	Ceramics	Cermet
Impact	Amorphous ferrochromes[9] Cobalt alloys[9] Fe-0,8C[34] Fe-19Cr-0,1C-1,6B[34] Fusible[9] Mo alloys[9] NiCrSiFeB[21] Stellite-21[42]		Carbide cermet[9] Cr3C2-NiCr[42] WC-Co[21] WC-CoCr[21][42] WC-CoFe[21]
Rolling	AlSnCuNi[83]		WC cermet[61] WC-Co[68]
Sliding	Al-20Sn-1Cu[25] Al-20Sn-1Cu-2Ni[25] Al-20Sn-1Cu-7Si[25] Co-28Mo-17Cr-3Si[26] CoMoCrSi[90] CuWZn[79] Fe-15Cr-14Mo-15C-6B-2Y[36] Fe-40Al-0,05Zr[31] FeCrB[45] FeCrNiBC[109] FeCrWBMnMn[35] Mo-(Cu-10Sn)-(Al-12Si)[23] Ni-21Cr-8,3Mo-5Fe-1,2Nb-Ti[22] Ni-3Al[33][105] NiCr[33][105] NiCrSiB[112] Stainless steel[2] Ti[7]	Al2O3[16][74][98] Al2O3-TiO2[32][64][106][111] Al2O3-ZrO2[40] Cr2O3[2][13][32][74][103] Cr2O3-TiO2[43] ZrO2-Y2O3[18][32][78]	Al2O3-Al[97] Cr3C2-CoNiCrAlY[110] Cr3C2-NiCr[7][13][71][74][103][110] Cr3C2-NiCr-SFA[67] FeB-BN[102] MoCoB-CoCr[27] Mo-FEP-Al2O3-TiO2[20] MoS2 cermet[59] Ni60[60] NiCrWB-50Al2O3[86] Ni-TiC[79] NiWC25[60] NiWC35[60] SiC cermet[57] TiC-SFA[56] TiC-Ti[7] VC-WC-CoCr[74] WC-(W/Cr)2C-Ni[39] WC-Co[7][12][13][14][17][19][38][39][44][46][53][63][68][72][74][76][86][110] WC-CoCr[12][14][19][20][32][41][44][46][53][58][74][103][108] WC-Co-NiCrSiB[47] WC-Cr3C2-Ni[44][110] WC-Ni[20]

5 Comparison table of corrosion resistance and spray powder chemistry

Table 2 — Comparison of corrosion resistance and spray powder chemistry

Type of corrosion	Environment and effects	Materials	Ref. no.
Acid/alkaline/salt	Galvanic	Al on Ni-20Cr	[196]
		Al ₂ O ₃ , Cr ₂ O ₃	[129]
		Fe-based alloy	[178]
		Fe-17Cr-38Mo-4C alloy	[124]
		Inconel 625	[289]
		Inconel 690	[202]
		Many kinds of materials	[190]
		NiCrMoB	[210]
		Stainless steel	[184]
		316L	[183]
		Ternary coating system involving aluminium, zinc and magnesium	[209]
		Twin-wire electric arc spraying of zinc and aluminium coatings	[188]
	Mechanical	Al ₂ O ₃ , Cr ₂ O ₃ , Al ₂ O ₃ -ZrO ₂	[205]
	Metallographic	Al ₂ O ₃ -TiO ₂	[160], [261]
		Fe-10Cr-10Mo containing a large amount of carbon and/or boron	[121]
		Fe-based alloy	[168]
		Hastelloy C-22	[145]
		Ni-Ti composite	[169]
		WC, NiCrMo	[243]
		WC-Co	[239]
	Mechanical	Cr ₂ O ₃ , WC-12%Co, Ni-11%P, Al-2%Zn	[123]
	Uniform	Al, Al+Al ₂ O ₃ , Al+Al ₂ O ₃ +Zn	[174]
		Al ₂ O ₃ , Al ₂ O ₃ -Cr ₂ O ₃	[295]
		Al ₂ O ₃ -TiO ₂	[270], [273]
		Al-Al ₂ O ₃	[272]
		Cr ₃ C ₂ -20NiCr	[267]
		Fe-Cr-based Armacor C TM coating	[194]
		Fusible Ni-B-Si alloys with a variety of alloy additions (Cr, Mo, Cu, etc.)	[191]
		Inconel 625	[279]
		Ni, Ni-20Cu, Ni-20Cr, Ni-20Cr+50Al ₂ O ₃ , Ni-20Cr+30WC-CoCr	[161]
		Ni-20Cr	[116]
		NiCrBSi	[282]
		SM 8625, Inconel 625, SM8276, Hastelloy276, Deloro Stellite 21, Mo wire	[294]
		316L	[193]
		Ta	[271]

Table 2 (continued)

Type of corrosion	Environment and effects	Materials	Ref. no.
		Ti	[164], [192], [269], [278]
		TiO ₂	[165]
		WC-10Co4Cr, Cr3C2-25NiCr, Sanicro28	[283]
		YSZ	[167]
		Zn, Al, Zn-15Al	[266]
	Galvanic	Al-5%Mg	[171]
		Fe-10Cr-13P-7C	[127]
		Fe-based amorphous alloys	[138]
		IN 625	[139]
		Ni-50%Cr mixed with NbC, TaC, TiC, WC, Cr3C2, or VC	[125]
		Ni-based amorphous alloys	[135]
		NiCr, NiCrSiB, NiCrMoFeCuBSi, NiCrMoNb, CoNiCrMoBSi, WC-Co, CrC-NiCr	[204]
		WC-Co, WC-Co-Cr, WC-NiMoCrFeCo, WC-FeCrAl, WC-SS316L, WC-FeNiCr alloy, Cr3C2-NiCr, Cr3C2-NiCrMoNb, FeCrC-Ni	[285]
	Mechanical	TiO ₂	[149]
	Metallographic	Cr3C2-NiCr	[156]
		WC-CoCr	[170]
Atmospheric corrosion	Galvanic	Zn	[119], [120]
	High temperature	CrC-NiCr	[232]
		MCrAlY	[247]
		NiCrAlY	[288]
		YSZ	[128]
		YSZ, CaO-SiO ₂ -ZrO ₂	[122]
	Environmental embrittlement	Cr3C2-NiCr	[148]
		Cr3C2-NiCr, WC	[154]
	Mechanical Uniform	Al ₂ O ₃ , CrNi-steel, CrMo-steel	[224]
	Metallographic	Al, Zn, NiAl, NiCrBSi	[233]
	Uniform	CrMo-steel, TiC-Ni-Ti	[226]
		AlSi/Graphite, AlSi/hBN	[216]
	Environmental embrittlement	Zn	[252]
	Galvanic	Zn	[220]
	High temperature	Al, FeCrNi, FeCrNiSiB	[140]
	Metallographic	CrC-NiCr	[228]
Biochemical	Uniform	Ethylene methacrylic acid and ethylene tetrafluoroethylene	[195]
Biological	Metallographic	Ti	[177]

Table 2 (continued)

Type of corrosion	Environment and effects	Materials	Ref. no.
Chemical agent	High temperature	Fe-Al, Incoloy 800H	[213]
		In 625	[254]
	Environmental embrittlement	SFA	[152]
		SFA, In 625	[153]
	Mechanical	Hastelloy C276, SUS316L	[115]
Chemicals in food	Mechanical	NiCr	[219]
Combustion gas	High temperature	304, Al	[245]
		CoNiCrAlY	[114]
		Cr-based alloy	[225]
		Cr-Ni-2,5Mo-1Si-0,5B (55 % and 58 % Cr)	[118]
		Fe-Cr-Si	[276]
		In 625	[254]
		MCrAlY, YSZ	[131]
		MoSi	[179]
		Ni-20Cr	[173]
		Ni-50Cr	[151], [211]
		NiAl, WC	[246]
		Nickel and cobalt-based self-fluxing alloys, iron-based amorphous alloy and chromium carbide cermet coatings	[176]
		Phosphoric acid sealed ceramic coatings	[182]
		Sol-gelled 8YZ	[181]
		Y2O3-ZrO2	[144]
		YSZ	[180], [234]
		YSZ, NiAl	[136]
	Environmental embrittlement	Cr3C2NiCr	[148]
		Cr3C2NiCr, WC	[154]
		SFA	[152]
		SFA, In 625	[153]
	Metallographic	Ni-5Al	[113]
Sea water	Galvanic	Al	[249]
		Al, Zn, ZnAl	[253]
		AlSn, AlSnCu	[203]
		Al-Zn	[286]
		FeCrNiMo stainless steel	[217]
		Inconel 625	[289]
		Inconel 690	[202]
		Many kinds of off-shore application	[189]
		Ni-based 16C, Co-based Stellite 6	[207]

Table 2 (continued)

Type of corrosion	Environment and effects	Materials	Ref. no.
		NiCr+Mo, laser alloy Stainless steel Ti TiC+NiTi, (Ti, W)C+Ni, WC-Co, WC-CoCr, CrC-NiCr, Inconel WC-Co, Inconel WC-CoCr, NiCrSiB Zn, Zn-Al Zn, ZnAl, ZnSnAl, ZnMgAl, ZnCr5 ZnAl	[198] [184] [291], [297] [200] [215] [201] [260] [293] [264]
	Uniform	Al Al ₂ O ₃ +sealants Al-Cu, Al-Zn, Zn AlSi/Graphite, AlSi/hBN Polymer Ta, Ti Ti Ti WC-CoCr WC-CoCr/HVOF, Sealing Zn, Zn-15Al, Al, Al-5Si, Al-12Si, Cu-7Al-0,5Fe, Cu-9Al-4Ni-4Fe-1,5Mg, 60Cu-40Zn-0,7Sn-0,05Pb, 420 stainless steel, 316 stainless steel ZnNi-Al ₂ O ₃ , ZnCu-Al ₂ O ₃ , Zn-Al-Al ₂ O ₃	[287] [133] [275] [216] [235] [126] [134] [281] [187] [166] [162] [284]
	Environmental embrittlement	Al Zn	[130] [197]
	Galvanic	Al, Al+Al ₂ O ₃ , Al+Al ₂ O ₃ +Zn WC-Co, Ni WC-Co, WC-Co-Cr, WC-NiMoCrFeCo, WC-FeCrAl, WC-SS316L, WC-FeNiCr alloy, Cr ₃ C ₂ -NiCr, Cr ₃ C ₂ -NiCrMoNb, Fe-CrC-Ni WC-CoCr, WC-NiCr, WC-CoCrMo, WC-CrMoNi Zn, Al, Zn15Al, Al5Mg Zn, Al Zn	[292] [137] [285] [208] [199] [242] [220]
	High temperature	Al, FeCrNi, FeCrNiSiB	[140]
	Mechanical	PEEK TiO ₂ WC-Co, WC-CoCr, Cr ₂ O ₃ , NiCrSiB	[230] [149] [212]
	Metallographic	Cr ₃ C ₂ -NiCr WC-CoCr	[156], [228] [251]

Table 2 (continued)

Type of corrosion	Environment and effects	Materials	Ref. no.
		WC-NiCr, CrC-NiCr, TiC-NiCr	[229]
		ZnAl	[132]
	Metallographic	316L	[238]
		316L, Hastelloy C	[236]
		Al, Zn, NiAl, NiCrBSi	[233]
		Fe-based	[257]
		Hastelloy C	[240]
		Inconel 625	[237]
		NiCrMoNb	[241]
		NiCrWBSi	[143]
		316	[263]
		Ti	[158]
		WC-CoCr	[244]
		WC-CoCr, WC-Co	[146]
	Galvanic	WC-Co	[227]
	Uniform	NiCrMoSiB	[141]
	Mechanical	Al2O3	[214]
		Al2O3, Cr2O3, Al2O3-Cr2O3	[206]
		NiCrMoSiB	[142]
		WC-CoCr, WC-NiCr, WC-CoCrMo, WC-CrMoNi	[218]
		SUME SOL, Mo, WC-CoCr	[223]
		Al2O3, CrNi-steel, CrMo-steel	[224]
	Environmental embrittlement	Stainless steel	[147]
		Zn, Al	[268]
Fresh water	Environmental embrittlement	Stainless steel wire	[147]
	Galvanic	Al, Zn, ZnAl	[253]
	Metallographic	Stainless steel	[250]
	Uniform	Stainless steel	[155]
	Mechanical	WC-Co, SFA, Cr2O3, Al2O3	[221]
	Environmental embrittlement	Zn	[252]
Molten metal	Galvanic	WC-Co, WC-CoCr, MoB-CoCr	[163]
	Metallographic	WC, Cr3C2-cermet	[258]
Molten salt	High temperature	Cr3C2-NiCr	[157]
		Cr-Ni-2,5Mo-1Si-0,5B (55 % and 58 % Cr)	[118]
		Ni-20Cr	[274]
		Ni-5Al, NiCrAl	[262]
		Nickel and cobalt-based self-fluxing alloys, iron-based amorphous alloy and chromium carbide cermet coatings	[176]

Table 2 (continued)

Type of corrosion	Environment and effects	Materials	Ref. no.
		NiCr	[159]
		WC-Co	[265]
		WC-NiCrFeSiB	[255]
		YSZ, CaO-SiO ₂ -ZrO ₂	[122]
	Metallographic	Cr	[248]
	Uniform	Ni-20Cr	[290]
	Metallographic	Ni-20Cr	[298]
Non-aqueous solution	Galvanic	Al	[256]
	High temperature	CaZrO ₃	[172]
		CoNiCrAlY	[175]
		Ni-Cr, NiCrAlY	[277]
Soil corrosion	Mechanical	Ni-based	[259]
Steam	High temperature	Ni-50Cr	[151]
	Environmental embrittlement	Mullite/YSZ	[280]
Miscellaneous	High temperature	FeCrAl, NiAl	[296]
	Mechanical	Slurry erosion test	[185]
		WC-(Co/Cr/Mo/Ni) erosion-corrosion	[186]
	Metallographic	Titanium-manganese alloy	[117]
	Uniform Metallographic	WC-CoCr	[251]

Bibliography

- [1] NERZ J., KUSHNER B., ROTOLICO A. Microstructural evaluation of tungsten carbide-cobalt coatings. *JTST*. **1** (2), pp. 147–152, WC-Co
- [2] USMANI S., & TANDON K.N. Evaluation of thermally sprayed coatings under reciprocating lubricated wear conditions. *JTST*. **1** (3), pp. 249–255, “Cr2O3, Stainless steel”
- [3] WAYNE S.F., & SAMPATH S. Structure/property relationships in sintered and thermally sprayed WC-Co. *JTST*. **1** (4), pp. 307–315, WC-Co
- [4] GUO D.Z., & WANG L.J. Study of fracture and erosive wear of plasma sprayed coatings. *JTST*. **2** (3), pp. 257–263, “ZrO2-5CaO, ZrO2-Y2O3, WC-Co”
- [5] KIM H.J., KWEON Y.G., CHANG R.W. Wear and erosion behavior of plasma-sprayed WC-Co coatings. *JTST*. **3** (2), pp. 169–178, WC-Co
- [6] NIEMI K., VUORISTO P., MÄNTYLÄ T. Properties of alumina-based coatings deposited by plasma spray and detonation gun spray processes. *JTST*. **3** (2), pp. 199–203, “TiO2, Al2O3, ZrO2-Y2O3”
- [7] MOHANTY M., & SMITH R.W. Lightweight TiC/Ti wear-resistant coatings for lightweight structural applications. *JTST*. **4** (4), pp. 384–394, “Ti, TiC-Ti, Cr3C2-NiCr, WC-Co”
- [8] LEIVO E.M., VIPPOLA M.S., SORSA P.P.A., VUORISTO P.M.J., MÄNTYLÄ T.A. Wear and corrosion properties of plasma sprayed Al2O3 and Cr2O3 coatings sealed by aluminum phosphates. *JTST*. **6** (2), pp. 205–210, Al2O3, Cr2O3
- [9] MOSKOWITZ L., & TRELEWICZ K. HVOF coatings for heavy-wear, high-impact applications. *JTST*. **6** (3), pp. 294–299, “Carbide cermet, Fusible, Cobalt alloys, Mo alloys, Amorphous ferrochromes”
- [10] GHOSH K., TROCZYNSKI T., CHAKLADER A.C.D. Aluminum-silicon carbide coatings by plasma spraying. *JTST*. **7** (1), pp. 78–86, Al-SiC
- [11] KULU P., & HALLING J. Recycled hard metal-base wear-resistant composite coatings. *JTST*. **7** (2), pp. 173–178, NiCrSiB, WC-Co
- [12] JACOBS L., HYLAND M.M., DE BONTE M. Comparative study of WC-cermet coatings sprayed via the HVOF and the HVAF process. *JTST*. **7** (2), pp. 213–218, WC-CoCr, WC-Co
- [13] ZHANG Y., LI J., HUANG J., DING C. Mechanical and tribological properties of plasma-sprayed Cr3C2-NiCr, WC-Co, and Cr2O3 coatings. *JTST*. **7** (2), pp. 242–246, “Cr3C2-NiCr, WC-Co, Cr2O3”
- [14] JACOBS L., HYLAND M.M., DE BONTE M. Study of the influence of microstructural properties on the sliding-wear behavior of HVOF and HVAF sprayed WC-cermet coatings. *JTST*. **8** (1), pp. 125–132, WC-Co, WC-CoCr
- [15] SCHWETZKE R., & KREYE H. Microstructure and properties of tungsten carbide coatings sprayed with various high-velocity oxygen fuel spray systems. *JTST*. **8** (3), pp. 433–439, WC-Co, WC-CoCr
- [16] SARAVANAN P., SELVARAJAN V., SRIVASTAVA M.P., RAO D.S., JOSHI S.V., SUNDARARAJAN G. Study of plasma-and detonation gun-sprayed alumina coatings using Taguchi experimental design. *JTST*. **9** (4), pp. 505–512, Al2O3
- [17] QIAO Y., LIU Y.R., FISCHER T.E. Sliding and abrasive wear resistance of thermal-sprayed WC-Co coatings. *JTST*. **10** (1), pp. 118–125, WC-Co
- [18] GUILMANY J.M., ARMADA S., MIGUEL J.M. Evaluation of wear damage in zirconia plasma-sprayed coatings using scanning white light interferometry. *JTST*. **10** (1), pp. 142–146, ZrO2-Y2O3

- [19] SAVARIMUTHU A.C., TABER H.F., MEGAT I., SHADLEY J.R., RYBICKI E.F., CORNELL W.C. Sliding wear behavior of tungsten carbide thermal spray coatings for replacement of chromium electroplate in aircraft applications. *JTST*. **10** (3), pp. 502–510, WC-Co, WC-CoCr
- [20] MARPLE B.R., & VOYER J. Improved wear performance by the incorporation of solid lubricants during thermal spraying. *JTST*. **10** (4), pp. 626–636, “WC-Ni, WC-CoCr, Mo-FEP-Al₂O₃-TiO₂”
- [21] KULU P., & PIHL T. Selection criteria for wear resistant powder coatings under extreme erosive wear conditions. *JTST*. **11** (4), pp. 517–522, “WC-Co, WC-CoCr, WC-CoFe, NiCrSiFeB”
- [22] DENT A.H., DEPALO S., SAMPATH S. Examination of the wear properties of HVOF sprayed nanostructured and conventional WC-Co cermets with different binder phase contents. *JTST*. **11** (4), pp. 551–558, WC-Co
- [23] AHN J., HWANG B., LEE S. Improvement of wear resistance of plasma-sprayed molybdenum blend coatings. *JTST*. **14** (2), pp. 251–257, “Mo-(Cu-10Sn)-Al-12Si”
- [24] LIMA R.S., & MARPLE B.R. Superior performance of high-velocity oxyfuel-sprayed nanostructured TiO₂ in comparison to air plasma-sprayed conventional Al₂O₃-13TiO₂. *JTST*. **14** (3), pp. 397–404, Al₂O₃-13TiO₂
- [25] MARROCCO T., DRIVER L.C., HARRIS S.J., MCCARTNEY D.G. Microstructure and properties of thermally sprayed Al-Sn-based alloys for plain bearing application. *JTST*. **15** (4), pp. 634–639, “Al-20Sn-1Cu, Al-20Sn-1Cu-2Ni, Al-20Sn-1Cu-7Si”
- [26] BOLELLI G., & USVARGHI L. Heat treatment effects on the tribological performance of HVOF sprayed Co-Mo-Cr-Si coatings. *JTST*. **15** (4), pp. 802–810, Co-28Mo-17Cr-3Si
- [27] HAMASHIMA K. Application of new boride-cermet coating to forming of glass sheets. *JTST*. **16** (1), pp. 32–33, MoCoB-CoCr
- [28] KIM G.E., & WALKER J. Successful application of nanostructured titanium dioxide coating for high-pressure acid-leach application. *JTST*. **16** (1), pp. 34–39, nano-TiO₂
- [29] GUILMANY J.M., TORRELL M., MIGUEL J.R. Study of the HVOF Ni-based coatings’ corrosion resistance applied on municipal solid-waste incinerators. *JTST*. **17** (2), pp. 254–262, “Ni-21Cr-8.3Mo-5Fe-1.2Nb-Ti”
- [30] HE D.-Y., FU B.-Y., JIANG J.-M., LI X.-Y. Microstructure and wear performance of arc sprayed Fe-FeB-WC coatings. *JTST*. **17** (5–6), pp. 757–761, “Fe-13Cr-7Ni-4B-5W-0.2C”
- [31] GUILMANY J.M., CINCA N., FERNÁNDEZ J., SAMPATH S. Erosion, abrasive, and friction wear behavior of iron aluminide coatings sprayed by HVOF. *JTST*. **17** (5–6), pp. 762–773, Fe-40Al-0.05Zr
- [32] GIOLLI C., TURBIL M., RIZZI G., ROSSO M., SCRIVANI A. Wear resistance improvement of small dimension invar massive molds for CFRP components. *JTST*. **18** (4), pp. 652–664, “ZrO₂-Y₂O₃, Al₂O₃-13TiO₂, Cr₂O₃, WC-CoCr”
- [33] KAUR M., SINGH H., SINGH B., SINGH B. Studies on the sliding wear performance of plasma spray Ni-20Cr and Ni3Al coatings. *JTST*. **19** (1–2), pp. 378–383, NiCr, Ni-3Al
- [34] HAHN M., & FISCHER A. Characterization of thermal spray coatings for cylinder running surfaces of diesel engines. *JTST*. **19** (5), pp. 866–872, “Fe-0.8C, Fe-19Cr-0.1C-1.6B”
- [35] VOYER J. Wear-resistant amorphous iron-based flame-sprayed coatings. *JTST*. **19** (5), pp. 1013–1023, FeCrWBMn
- [36] ZHOU Z., WANG L., HE D.Y., WANG F.C., LIU Y.B. Microstructure and wear resistance of Fe-based amorphous metallic coatings prepared by HVOF thermal spraying. *JTST*. **19** (6), pp. 1287–1293, “Fe-15Cr-14Mo-15C-6B-2Y”

- [37] KAŠPAROVÁ M., ZAHÁLKA F., HOUDKOVÁ S. WC-Co and Cr₃C₂-NiCr coatings in low- and high-stress abrasive conditions. *JTST*. **20** (3), pp. 412–424, “WC-Co, Cr₃C₂-NiCr”
- [38] BONACHE V., SALVADOR M.D., GARCÍA J.C., SÁNCHEZ E., BANNIER E. Influence of plasma intensity on wear and erosion resistance of conventional and nanometric WC-Co coatings deposited by APS. *JTST*. **20** (3), pp. 549–559, WC-Co
- [39] HOU G., AN Y., LIU G., ZHOU H., CHEN J., CHEN Z. Effect of atmospheric plasma spraying power on microstructure and properties of WC-(W,Cr)₂C-Ni coatings. *JTST*. **20** (6), pp. 1150–1160, “WC-(W/Cr)₂C-Ni, WC-Co”
- [40] DEJANG N., LIMPICHAIPANIT A., WATCHARAPASORN A., WIROJANUPATUMP S., NIRANATLUMPONG P., JIANSIRISOMBOON S. Fabrication and properties of plasma-sprayed Al₂O₃/ZrO₂ composite coatings. *JTST*. **20** (6), pp. 1259–1268, Al₂O₃-ZrO₂
- [41] AGÜERO A., CAMÓN F., GARCÍA DE BLAS J., DEL HOYO J.C., MUELAS R., SANTABALLA A. HVOF-deposited WCCoCr as replacement for hard Cr in landing gear actuators. *JTST*. **20** (6), pp. 1292–1309, WC-CoCr
- [42] KANG A.S., GREWAL J.S., JAIN D., KANG S. Wear behavior of thermal spray coatings on rotavator blades. *JTST*. **21** (2), pp. 355–359, “WC-CoCr, Cr₃C₂-NiCr, Stellite-21”
- [43] TRACHE R., BERGER L.-M., SAARO S., LIMA R.S., MARPLE B.R. The Influence of Particle Temperature, Particle Velocity and Coating Surface Temperature on the Sliding Wear Performance of TiO₂-Cr₂O₃ Coatings, Proc. Int’l Thermal Spray Conf., 2010, (DVS-ASM), pp. 321–326, Cr₂O₃-TiO₂
- [44] NOMAKUCHI K., ITOIGAWA F., KITAMURA J., SATO K. Tribological Analysis of WC Cermet Coatings with Friction Test under Tensile Stress Condition, Proc. Int’l Thermal Spray Conf., 2010, (DVS-ASM), pp. 679–684, “WC-Co, WC-CoCr, WC-Cr₃C₂-Ni”
- [45] JIN H.-W., PARK C.G., KIM M.C. Microstructure and Wear-Resistance of Fe-Cr-B Alloy Coatings Fabricated by Detonation Gun, Proc. Int’l Thermal Spray Conf., 1998 (ASM International), pp. 111–116, FeCrB
- [46] JACOBS L., & DE BONTE M. Wear Behaviour of HVOF and HVOF Sprayed WC-Cermet Coatings, Proc. Int’l Thermal Spray Conf., 1998 (ASM International), pp. 169–174, WC-CoCr, WC-Co
- [47] AHN H.S., & LEE C.H. A Study on the Wear Characteristics of Plasma Sprayed NiCrSiB/WC-12Co Mixed Coating, Proc. Int’l Thermal Spray Conf., 1998 (ASM International), pp. 175–180, WC-Co-NiCrSiB
- [48] SCHWETZKE R., & KREYE H. Microstructure and Properties of Tungsten Carbide Coatings Sprayed With Various HVOF Spray Systems, Proc. Int’l Thermal Spray Conf., 1998 (ASM International), pp. 187–192, WC-Co, WC-CoCr
- [49] DE VILLIERS LOVELOCK H.L., MATTEK P., MATTEK V.W. Effect of Powder Type and Composition on The Erosion and Abrasion of HP/HVOF Deposited WC-Co Coatings, Proc. Int’l Thermal Spray Conf., 1998 (ASM International), pp. 193–198, WC-Co, WC-CoCr
- [50] KIM H.-J. Microstructural Evaluations of the Plasma Transferred Arc Coated Layers on the Hardness, Wear Resistance, and Corrosion for the Hardfacing of Ni- and Co-Based Alloys, Proc. Int’l Thermal Spray Conf., 1998 (ASM International), pp. 217–224, NiCrSiB, Stellite 6
- [51] ILAVSKY J., PISACKA J., CHRASKA P., MARGANDANT N., SIEGMANN S., WAGNER W. Microstructure-Wear and Corrosion Relationships for Thermally Sprayed Metallic Deposits, Proc. Int’l Thermal Spray Conf., 2000 (ASM International), pp. 449–454, NiCr
- [52] LAUL K., & DORFMAN M. New Chromium Carbide-Nickel Chrome Materials for High Temperature Wear Applications, Proc. Int’l Thermal Spray Conf., 2000 (ASM International), pp. 561–566, Cr₃C₂-NiCr

- [53] SAVARIMUTHU A.C., MEGAT I., TABER H.F., SHADLEY J.R., RYBICKI E.F., EMERY W.A. Sliding Wear Behavior as a Criterion for Replacement of Chromium Electroplate by Tungsten Carbide (WC) Thermal Spray Coatings in Aircraft Applications, Proc. Int'l Thermal Spray Conf., 2000 (ASM International), pp. 1095–1104, WC-Co, WC-CoCr
- [54] KIM G.E., BRZEZINSKI T.A., LEBLANC L., KHARLANOVA E. Thermal Spray Coatings for Ball Valves Used in Nickel/Cobalt Pressure Acid Leaching, Proc. Int'l Thermal Spray Conf., 2000 (ASM International), pp. 1149–1153, "Cr2O3, TiO2, ZrO2-Y2O3"
- [55] SCRIVANI A., LANELLI S., GROPPETTI R., BERTINI S., LACORIX O., RIZZI G. A Contribution to the Production and Characterization of HVOF coatings for Application in the Petrochemical Field, Proc. Int'l Thermal Spray Conf., 2001 (ASM International), pp. 141–148, "WC-CoCr, Cr3C2-NiCr, Inconel 625"
- [56] BLATCHFORD M.T., JONES M., HORLOCK A.J., MCCARTNEY D.G., SHIPWAY P.H., WOOD J.V. Improvements in HVOF Sprayed Cermet Coatings Produced from SHS Powders, Proc. Int'l Thermal Spray Conf., 2001 (ASM International), pp. 221–230, TiC-SiC
- [57] WIELAGE B., WILDEN J., SCHNICK T. Manufacture of SiC Composite Coatings by HVOF, Proc. Int'l Thermal Spray Conf., 2001 (ASM International), pp. 251–258, SiC cermet
- [58] ARSENAULT B., LEGOUX J.G., HAWTHORNE H., IMMARIGEON J.P., GOUGEON P. HVOF Process optimization for the Erosion Resistance of WC-12Co and WC-10Co-4Cr Coatings, Proc. Int'l Thermal Spray Conf., 2001 (ASM International), pp. 1051–1060, WC-CoCr
- [59] GADOW R., & SCHERER D. Ceramic and Metallurgical Composite Coatings with Advanced Tribological Properties under Dry Sliding Conditions, Proc. Int'l Thermal Spray Conf., 2001 (ASM International), pp. 1069–1074, MoS2 cermet
- [60] DING Z., ZHAO H., WANG J. Effect of WC Content on the Wear Resistance Of Ni-base Alloy Spray Fusing Overlays, Proc. Int'l Thermal Spray Conf., 2001 (ASM International), pp. 1089–1092, "Ni60, NiWC25, NiWC35"
- [61] FISCHER F., & DVORAK M. Development of Ultra Thin Carbide Coatings for wear and Corrosion Resistance, Proc. Int'l Thermal Spray Conf., 2001 (ASM International), pp. 1131–1135, WC cermet
- [62] SONOYA K. Blast Erosion Properties of Erosion-Resistant Thermally Sprayed Coatings, Proc. Int'l Thermal Spray Conf., 2001 (ASM International), pp. 1303–1311, Cr3C2-NiCr
- [63] SHMYREVA T., & WANG D. Structure – wear resistance relationship for JP-5000TM cermet coatings, Proc. Int'l Thermal Spray Conf., 2002 (DVS-ASM), pp. 300–305, WC-Co
- [64] LEBLANC L., & KHARLANOVA E. On the influence of spraying conditions and powder feed structure on wear properties of atmospheric and vacuum plasma sprayed Al2O3-13TiO2 coatings, Proc. Int'l Thermal Spray Conf., 2002 (DVS-ASM), pp. 351–356, Al2O3-TiO2
- [65] SUDAPRASERT T., MCCARTNEY D.G., SHIPWAY P.H. Role of spray system and powder feedstock on the sliding wear behaviour of WC-Co HVOF sprayed coatings, Proc. Int'l Thermal Spray Conf., 2002 (DVS-ASM), pp. 494–499, WC-Co
- [66] LIMA C.R.C. Study and characterization of high velocity oxy-fuel thermally sprayed wear coatings, Proc. Int'l Thermal Spray Conf., 2002 (DVS-ASM), pp. 672–675, WC-Co
- [67] GUILMANY J.M., LORENZANA C., MIGUEL J.M., DELGADO J. A study of the microstructure, wear and corrosion behavior of high velocity oxygen fuel (HVOF) thermally sprayed coatings and self-standing forms, obtained with blends of Cr3C2-NiCr-NiCrBSi, Proc. Int'l Thermal Spray Conf., 2002 (DVS-ASM), pp. 884–889, Cr3C2-NiCr-SiC
- [68] STOICA V., AHMED R., TOBE S. Wear of hot isostatically pressed (HIPed) thermal spray cermet coatings, Proc. Int'l Thermal Spray Conf., 2002 (DVS-ASM), pp. 930–937, WC-Co

- [69] ZIMMERMANN S., KELLER H., SCHWIER G. New Carbide Based Materials for HVOF Spraying, Proc. Int'l Thermal Spray Conf., 2003 (ASM International), pp. 227–232, “WC-Co, WC-CoCr, WC-Ni, Cr3C2NiCr”
- [70] BACH Fr.-W., BABIAK Z., ROTHARDT T., FORMANEK, SILESIA B. Properties of Plasma and D-Gun Sprayed Metal-Matrix-Composite (MMC) Coatings Based on Ceramic Hard Particle Reinforced Fe-, Ni-aluminide Matrix, Proc. Int'l Thermal Spray Conf., 2003 (ASM International), pp. 249–253, FeNiAlCr-TiC-Al2O3
- [71] BERGE L.-M., ZIMMERMANN S., KELLER H., ENŽL R., THIELE S. Tribological behavior of HVOF-sprayed Cr3C2-NiCr and TiC-based coatings under high-temperature dry sliding conditions, Proc. Int'l Thermal Spray Conf., 2004 (ASM International), pp. 468–477, Cr3C2-NiCr
- [72] SAHRAOUI T., FENINECHE N.E., MONTAVON G., CODDET C. Wear behavior of HVOF Sprayed WC-12%Co coatings vs. Hard Chrome Plating, Proc. Int'l Thermal Spray Conf., 2004 (ASM International), pp. 488–491, WC-Co
- [73] WIELAGE B., REISEL G., WANK A. Optimization of wear protective coatings for heat transferring components, Proc. Int'l Thermal Spray Conf., 2004 (ASM International), pp. 504–509, “Cr2O3, WC-CoCr, Cr3C2-NiCr”
- [74] WIELAGE B., WANK A., POKHMURSKA H., FRIESEN E., GRUND T., SCHWENK A. Correlation of microstructure with abrasion and oscillating wear resistance of thermal spray coatings, Proc. Int'l Thermal Spray Conf., 2005 (DVS-ASM), pp. 868–874, “WC-Co, WC-CoCr, VC-WC-CoCr, Cr3C2-NiCr, Al2O3, Cr2O3”
- [75] NOHAVA J., ENZL R., ZAHALKA F., FOUCHER C. Fractographic approach to wear mechanisms of selected thermally sprayed coatings, Proc. Int'l Thermal Spray Conf., 2005 (DVS-ASM), pp. 875–880, “WC-Co, 316L, Cr3C2-NiCr, NiCrSiB, Cr2O3”
- [76] SHIPWAY P.H., MCCARTNEY D.G., SUDAPRASERT T. HVOF spraying of WC-Co coatings with liquid-fuelled and gas-fuelled systems: competing mechanisms of structural degradation, Proc. Int'l Thermal Spray Conf., 2005 (DVS-ASM), pp. 963–968, WC-Co
- [77] TURUNEN E., VARIS T., HANNULA S.-P., KESKINEN J., LINTUNEN P., FÄLT T. Nanoreinforced HVOF-sprayed ceramic coatings, Proc. Int'l Thermal Spray Conf., 2005 (DVS-ASM), pp. 998–1003, Al2O3, Al2O3-Ni
- [78] DING C., LIANG B., CHEN H. Sliding wear of plasma sprayed ZrO2 coatings using nanostructured powder, Proc. Int'l Thermal Spray Conf., 2005 (DVS-ASM), pp. 1431–1433, ZrO2-Y2O3
- [79] BENETEAU M., BIRTCH W., VILLAFUERTE J., PAILLE J., PETROCIC M., MAEV R.Gr. Gas Dynamic Spray Composite Coatings for Iron and Steel Castings, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 127–132, CuWZn, Ni-TiC
- [80] TURUNEN E., VARIS T., KESKINEN J., FÄLT T., HANNULA S.P. Improved Mechanical Properties by Nanoreinforced HVOF-Sprayed Ceramic Composite Coatings, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 531–535, “Al2O3, Al2O3-Ni, Al2O3-ZrO2”
- [81] LIN F., YU Y., ZENG K., REN X., SONG X., LI Z. Microstructure and Properties of Plasma-sprayed Ultrafine Cr2O3 Feedstock Powder and Coating, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 537–540, Cr2O3
- [82] FAGOAGAA I., PARCOA M., BARYKINA G., VAQUEROA C., de JUANB INASMET J. Development of Zirconia Coatings by HFPD, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 551–556, ZrO2-Y2O3
- [83] MARROCCO T., DRIVER L.C., HARRIS S.J., MCCARTNEY D.G. Microstructure and Properties of Thermally Sprayed Al-Sn based Alloys for Plain Bearing Applications, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 625–630, AlSnCuNi

- [84] VERSTAK A., & BARANOVSKI V. AC-HVAF Sprayed Tungsten Carbide: Properties and Applications, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 643–648, WC-CoCr
- [85] MATTHÄUS G., BOBZIN K., LUGSCHEIDER E., ZWICK J. Coating Properties of HVOF Sprayed Carbide-based Ultrafine Powders, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 673–678, “WC-CoCr, WC-Co, Cr₃C₂-NiCr”
- [86] WU C.Q., ZHOU K.S., DENG C.G., DENG C.M. HVAF Sprayed Composite Coating with Ni-base Self-Fluxing Alloy and WC on a Copper Substrate, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 689–691, “NiCrWB-50Al₂O₃, WC-Co”
- [87] BRANAGAN D.J., MARSHALL M.C., MEACHAM B.E., BAYLES R., LEMIEUX E.J., NEWBAUER T. Wear and Corrosion Resistant Amorphous/Nanostructured Steel Coatings For Replacement of Electrolytic Hard Chromium, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 733–738, FeCrMoWMnBCSi
- [88] PARCO M., FAGOAGA I., BOBZIN K., LUGSCHEIDER E., ZWICK J. Development and Characterization of Nanostructured Iron-Based Coatings by HFPD and HVOF, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 739–744, FeCrMoWMnBCSi
- [89] PETSAS N., PAPAPANOS G., VARDAMOULIAS M., MOUTSATSOU A., CELIS KATHOLIEKE J.P., MATTEAZZI P. CGI and MBN, Nanophased WC–12Co Thermal Spray Coatings for Wear Resistant Applications, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 791–796, WC-Co
- [90] BOLELLI G., & LUSVARGHI L. Heat Treatment Effects on the Tribological Performance of HVOF-Sprayed Co-Mo-Cr-Si Coatings, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 1259–1264, CoMoCrSi
- [91] PAUL S.N., MORE N.S., MURTHY J.K.N., ROY M., VENKATARAMAN B. Fretting Wear Behavior of Plasma Sprayed Cu-Ni-In Coating and Cu-Ni-In+MoS₂ Composite Coatings, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 1351–1356, CuNiIn
- [92] SHERMAN A., GARRETT W., CONKLIN M. Novel Nickel-Cermet Hardcoatings, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 1357–1361, Ni based cermet
- [93] BOLELLI G., CANNILLO V., LUSVARGHI L., TURUNEN E., VARIS T., FÄLT T. Wear Behaviour of APS and HVOF Sprayed Ceramic Coatings, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 1369–1374, Al₂O₃, Cr₂O₃
- [94] MEDARHRI Z., AGEORGES H., TOUIMI S., FAUCHAIS P., CTIBOR P. Wear Resistance of Cermet Coating Stainless Steel/ Chromium Oxide Plasma Sprayed, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 1393–1398, Cr₂O₃
- [95] VALAREZO A., CHOI W.B., GOULDSTONE A., SAMPATH S. Correlation between Process Maps of HVOF-Sprayed WC-Co Coatings and Wear Resistance, Proc. Int'l Thermal Spray Conf., 2006 (ASM International), pp. 1407–1412, WC-Co
- [96] TURUNEN E., KANERVA U., VARIS T., KNUUTTILA J., MILLIDYNE O., LEIVO J. Nanostructured Ceramic HVOF Coatings for Improved Protection, Proc. Int'l Thermal Spray Conf., 2007 (ASM International), pp. 484–488, Al₂O₃, TiO₂
- [97] TAO S.Y., YIN Z.J., ZHOU X.M., DING C.X. Effect of Aluminum Additive on Friction and Wear Behavior of Plasma Sprayed Ceramic Coatings, Proc. Int'l Thermal Spray Conf., 2007 (ASM International), pp. 927–930, Al₂O₃-Al
- [98] YIN Z.J., TAO S.Y., ZHOU X.M. Influence of Particle Size on Microstructure and Properties of Al₂O₃ Coatings Deposited by Plasma Spraying, Proc. Int'l Thermal Spray Conf., 2007 (ASM International), pp. 996–1000, Al₂O₃
- [99] WANK A., SCHWENK A., WIELAGE B., GRUND T., FRIESEN E. Behavior of Thermally Sprayed Wear Protective Coatings Exposed to Different Abrasive Wear Conditions in Comparison to Hard

- Chromium Platings, Proc. Int'l Thermal Spray Conf., 2007 (ASM International), pp. 1011–1016, “Cr3C2-NiCr, NiCrSiB, FeCrNi, WC-Co, WC-CoCr, Al2O3-TiO2, Cr2O3, NiCrSiB-WC-Co”
- [100] SAKATA K., NAKANO K., MIYAHARA H., MATSUBARA Y., OGI K. Microstructure Control of Thermally Sprayed Co-Based Self-fluxing Alloy Coatings by Diffusion Treatment, Proc. Int'l Thermal Spray Conf., 2007 (ASM International), pp. 1023–1028, Co based self fluxing alloy
- [101] SATO K., IBE H., MIZUNO H., KITAMURA J. Formation of WC/12%Co Coatings by High Velocity Oxygen-Fuel Spraying with High Wear Resistance and Lower Surface Roughness, Proc. Int'l Thermal Spray Conf., 2007 (ASM International), pp. 1125–1128, WC-Co
- [102] OZDEMIR I., GRUND T., WIELAGE B., TSUNEKAWA Y. Thermal Spraying of FeB Coatings Containing H-BN Solid Lubricant, Proc. Int'l Thermal Spray Conf., 2007 (ASM International), pp. 1149–1154, FeB-BN
- [103] BAUSE T., BACH F.-W., MÖHWALD K., ERNE M. Development of Near Net Shape Coatings for Wear and Corrosion Protection, Proc. Int'l Thermal Spray Conf., 2008 (DVS-ASM), pp. 24–29, “Cr2O3, Cr3C2-NiCr, WC-CoCr”
- [104] CHIVAVIBUL P., WATANABE M., KURODA S., KAWAKITA J., KOMATSU M., SATO K. Development of WC-Co Coatings Deposited by Warm Spray Process, Proc. Int'l Thermal Spray Conf., 2008 (DVS-ASM), pp. 54–58, WC-Co
- [105] KAUR M., SINGH H., SINGH B., SINGH B. Studies on the Sliding Wear Performance of Plasma Spray Ni 20Cr and Ni3Al Coatings, Proc. Int'l Thermal Spray Conf., 2009 (ASM International), pp. 1169–1174, NiCr, Ni3Al
- [106] VARGAS F., LÓPEZ M.E., AGEORGES H., FAUCHAIS P. The Effect of Toughness on Wear Resistance of Alumina – Titania Coatings Obtained by APS, Proc. Int'l Thermal Spray Conf., 2009 (ASM International), pp. 1201–1206, Al2O3-TiO2
- [107] DIZDAR S., NILSSON L.-Å., MAROLI B. Abrasive wear of flame sprayed and fused NiCrBSi alloys, Proc. Int'l Thermal Spray Conf., 2011 (DVS-ASM), pp. 130–135, NiCrSiB
- [108] ALTUNCU E., USTEL F., TURK A., UZUN A. Sliding wear behavior of HVOF sprayed metal matrix carbides, Proc. Int'l Thermal Spray Conf., 2011 (DVS-ASM), pp. 463–466, WC-CoCr
- [109] BOLELLI G., BONFERRONI B., LUSVARGHI L., MILANTI A., NIEMI K., LAURILA J. Characterization of HVOF-sprayed Fe-based alloy coatings, Proc. Int'l Thermal Spray Conf., 2011 (DVS-ASM), pp. 597–602, FeCrNiBC
- [110] HOUDKOVÁ Š., KAŠPAROVÁ M., ZAHÁLKA F. Sliding wear behavior of HVOF sprayed coatings, suitable for piston rings application, Proc. Int'l Thermal Spray Conf., 2011 (DVS-ASM), pp. 914–919, “WC-Co, WC-Cr3C2-Ni, Cr3C2-NiCr, Cr3C2-CoNiCrAlY”
- [111] VARGAS F., AGEORGES H., FAUCHAIS P., LOPEZ M.E. Evaluation by elastic and plastic contacts of wear performance of alumina-titania (13 and 45 wt %) coatings plasma and flame sprayed, Proc. Int'l Thermal Spray Conf., 2011 (DVS-ASM), pp. 1445–1450, Al2O3-TiO2
- [112] TILLMANN W., & LUO W. Microstructure and wear resistance of arc-sprayed NiCrBSi coatings after remelting, Proc. Int'l Thermal Spray Conf., 2011 (DVS-ASM), pp. 1451–1456, NiCrSiB
- [113] SVANTESSON J., & WIGREN J. A study of Ni-5wt.% Al coatings produced from different feedstock powder. *JTST*. 1 (1), pp. 65–70, Ni-5Al
- [114] LUGSCHEIDER E., HOFMANN D., NICOLL A.R. Optimization of spraying process and laser treatment of CoNiCrAlY. *JTST*. 1 (3), pp. 239–247, CoNiCrAlY
- [115] MOSKOWITZ L.N. Application of HVOF thermal spraying to solve corrosion problems in the petroleum industry-an industrial note. *JTST*. 2 (1), pp. 21–29, Hastelloy C276, SUS316L

- [116] TAKEMOTO M., & UENO G. Characteristics and corrosion performance of 80Ni-20Cr coating deposited by on-site thermal spraying. *JTST*. 2 (1), pp. 59–68, Ni20Cr
- [117] STEFFENS H.D., & BRUNE M. Vacuum- plasma- sprayed titanium- manganese electrode layers for MnO₂ deposition. *JTST*. 4 (1), pp. 85–88, titanium-manganese alloy
- [118] LONGA-NAVA Y., TAKEMOTO M., HIDAKA K. High-temperature corrosion performance of plasma-sprayed CrNiMoSiB coatings. *JTST*. 4 (2), pp. 169–174, Cr-Ni-2.5Mo-1Si-0.5B (55 and 58% Cr)
- [119] LEGOUX J.G., & DALLAIRE S. Adhesion mechanisms of arc-sprayed zinc on concrete. *JTST*. 4 (4), pp. 395–400, Zn
- [120] BROUSSEAU R., ARNOTT M., BALDOCK B. Long-term factors influencing the adhesion of metallized zinc to concrete. *JTST*. 5 (1), pp. 49–52, Zn
- [121] KISHITAKE K., ERA H., OTSUBO F. Characterization of plasma sprayed Fe-10Cr-10Mo-(C, B) amorphous coatings. *JTST*. 5 (2), pp. 145–153, Fe-10Cr-10Mo containing a large amount of carbon and/or boron
- [122] YOSHIBA M., ABE K., ARANAMI T., HARADA Y. High-temperature oxidation and hot corrosion behavior of two kinds of thermal barrier coating systems for advanced gas turbines. *JTST*. 5 (3), pp. 259–268, YSZ, CaO-SiO₂-ZrO₂
- [123] TOKAJI K., OGAWA T., HWANG J.U., KOBAYASHI Y., HARADA Y. Corrosion fatigue behavior of a steel with sprayed coatings. *JTST*. 5 (3), pp. 269–276, Cr₂O₃, WC-12%Co, Ni-11%P, Al-2%Zn
- [124] KISHITAKE K., ERA H., OTSUBO F. Characterization of plasma sprayed Fe-17Cr-38Mo-4C amorphous coatings crystallizing at extremely high temperature. *JTST*. 5 (3), pp. 283–288, Fe-17Cr-38Mo-4C alloy
- [125] TAKATANI Y., TOMITA T., NAGAI K., HARADA Y. Corrosion behavior of Ni-Cr weld overlay alloys with dispersed carbide particles in sodium chloride solution. *JTST*. 5 (3), pp. 289–297, Ni-50%Cr mixed with NbC, TaC, TiC, WC, O₃C₂, or VC
- [126] KINOS T., CHEN S.L., SIITONEN P., KETTUNEN P. Densification of plasma-sprayed titanium and tantalum coatings. *JTST*. 5 (4), pp. 439–444, Ta, Ti
- [127] KISHITAKE K., ERA H., OTSUBO F. Thermal-sprayed Fe-10CM3P-7C amorphous coatings possessing excellent corrosion resistance. *JTST*. 5 (4), pp. 476–482, Fe-10Cr-13P-7C
- [128] JONES R.L. Some aspects of the hot corrosion of thermal barrier coatings. *JTST*. 6 (1), pp. 77–84, YSZ
- [129] LEIVO E.M., VIPPOLA M.S., SORSA P.P.A., VUORISTO P.M.J., MÄNTYLÄ T.A. Wear and corrosion properties of plasma sprayed Al₂O₃ and Cr₂O₃ coatings sealed by aluminum phosphates. *JTST*. 6 (2), pp. 205–210, Al₂O₃, Cr₂O₃
- [130] ROGERS F.S. Thermal spray for commercial shipbuilding. *JTST*. 6 (3), pp. 291–293, Al
- [131] SAHOO P., CARR T., MARTIN R., DINH F. Thermal spray manufacturing issues in coating IGT hot section components. *JTST*. 7 (4), pp. 481–483, MCrAlY, YSZ
- [132] VARACELLE D.J., ZEEK D.P., ZANCHUCK V., SAMPSON E., COUCH K.W., BENSON D. Experimental studies of twin-wire electric arc sprayed zinc/aluminum alloy coatings. *JTST*. 7 (4), pp. 513–520, ZnAl
- [133] KNUUTTILA J., SORSA P., MÄNTYLÄ T., KNUUTTILA J., SORSA P. Sealing of thermal spray coatings by impregnation. *JTST*. 8 (2), pp. 249–257, Al₂O₃+sealants
- [134] ISHIKAWA K., SUZUKI T., KITAMURA Y., TOBE S. Corrosion resistance of thermal sprayed titanium coatings in chloride solution. *JTST*. 8 (2), pp. 273–278, Ti

- [135] DENT A.H., HORLOCK A.J., MCCARTNEY D.G., HARRIS S.J. The corrosion behavior and microstructure of high-velocity oxy-fuel sprayed nickel-base amorphous/nanocrystalline coatings. *JTST*. **8** (3), pp. 399–404, Ni-based amorphous alloy
- [136] PINT B.A., WRIGHT I.G., BRINDLEY W.J. Evaluation of thermal barrier coating systems on novel substrates. *JTST*. **9** (2), pp. 198–203, YSZ, NiAl
- [137] JOKINEN P., KORPIOLA K., MAHIOUT A. Duplex coating of electroless nickel and HVOF (high-velocity oxygen fuel) sprayed WC-Co. *JTST*. **9** (2), pp. 241–244, WC-Co, Ni
- [138] OTSUBO F., ERA H., KISHITAKE K. Formation of amorphous Fe-Cr-Mo-8P-2C coatings by the high velocity oxy-fuel process. *JTST*. **9** (4), pp. 494–498, Fe-based amorphous alloys
- [139] TUOMINEN J., VUORISTO P., MÄNTYLÄ T., KYLMÄLAHTI M., VIHINEN J., ANDERSSON P.H. Improving corrosion properties of high-velocity oxy-fuel sprayed inconel 625 by using a high-power continuous wave neodymium-doped yttrium aluminum garnet laser. *JTST*. **9** (4), pp. 513–519, IN alloy 625
- [140] LIU X. Arc spraying in China. *JTST*. **10** (1), pp. 40–43, Al, FeCrNi, FeCrNiSiB
- [141] SHRESTHA S., HODGKIESS T., NEVILLE A. The effect of post-treatment of a high-velocity oxy-fuel Ni-Cr-Mo-Si-B coating Part I: Microstructure/corrosion behavior relationships. *JTST*. **10**, (3), pp. 470–479, NiCrMoSiB
- [142] SHRESTHA S., HODGKIESS T., NEVILLE A. The effect of post-treatment of a high-velocity oxy-fuel Ni-Cr-Mo-Si-B coating part 2: Erosion-corrosion behaviour. *JTST*. **10** (4), pp. 656–665, NiCrMoSiB
- [143] GIL L., PRATO M.A., STAIA M.H. Effect of post-heat treatment on the corrosion resistance of NiWCrBSi HVOF coatings in chloride solution. *JTST*. **11** (1), pp. 95–99, NiCrWBSi
- [144] AHMANIEMI S., TUOMINEN J., VUORISTO P., MÄNTYLÄ T. Sealing procedures for thick thermal barrier coatings. *JTST*. **11** (3), pp. 320–332, Y2O3-ZrO2
- [145] LISTER T.E., WRIGHT R.N., PINHERO P.J., SWANK W.D. Corrosion of thermal spray hastelloy C-22 coatings in dilute HCl. *JTST*. **11** (4), pp. 530–535, Hastelloy C-22
- [146] PERRY J.M., HODGKIESS T., NEVILLE A. A comparison of the corrosion behavior of WC-Co-Cr and WC-Co HVOF thermally sprayed coatings by in situ atomic force microscopy (AFM). *JTST*. **11** (4), pp. 536–541, WC-CoCr, WC-Co
- [147] ZENG Z., SAKODA N., TAJIRI T. Corrosion behavior of wire-arc-sprayed stainless steel coating on mild steel. *JTST*. **15** (3), pp. 431–437, stainless steel
- [148] SIDHU T.S., PRAKASH S., AGRAWAL R.D. Characterizations and hot corrosion resistance of Cr3C2-NiCr coating on Ni-base superalloys in an aggressive environment. *JTST*. **15** (4), pp. 811–816, Cr3C2NiCr
- [149] KIM G.E., & WALKER J. Successful application of nanostructured titanium dioxide coating for high-pressure acid-leach application. *JTST*. **16** (1), pp. 34–39, TiO2 nano
- [150] LEE S.-H., THEMELIS N.J., CASTALDI M.J. High-temperature corrosion in waste-to-energy boilers. *JTST*. **16** (1), pp. 104–110
- [151] TANI K., & HARADA Y. Enhancement of service life of steam generating tubes in oil-fired boiler for power generation employing plasma spray technology. *JTST*. **16** (1), pp. 111–117, Ni50Cr
- [152] MATSUBARA Y., SOCHI Y., TANABE M., TAKEYA A. Advanced coatings on furnace wall tubes. *JTST*. **16** (2), pp. 195–201, SFA
- [153] KAWAHARA Y. Application of high temperature corrosion-resistant materials and coatings under severe corrosive environment in waste-to-energy boilers. *JTST*. **16** (2), pp. 202–213, SFA, In625

- [154] SIDHU H.S., SIDHU B.S., PRAKASH S. Hot corrosion behavior of HVOF sprayed coatings on ASTM SA 213-T11 steel. *JTST*. **16** (3), pp. 349–354, Cr3C2NiCr, WC
- [155] WILDEN J., BERGMANN J.P., JAHN S., KNAPP S., VAN RODIJNEN F., FISCHER G. Investigation about the chrome steel wire arc spray process and the resulting coating properties. *JTST*. **16** (5–6), pp. 759–767, SUS
- [156] MAGNANI M., SUEGAMA P.H., ESPALLARGAS N., FUGIVARA C.S., DOSTA S., GUILMANY J.M., BENEDETTI A.V. Corrosion and wear studies of Cr3C2NiCr-HVOF coatings sprayed on AA7050 T7 under cooling. *JTST*. **18** (3), pp. 353–363, Cr3C2-NiCr
- [157] KAUR M., SINGH H., PRAKASH S. High-temperature corrosion studies of HVOF-sprayed Cr3C2-NiCr coating on SA E-347H boiler steel. *JTST*. **18** (4), pp. 619–632, Cr3C2-NiCr
- [158] ZHAO W.-M., LIU C., DONG L.-X., WANG Y. Effects of arc spray process parameters on corrosion resistance of Ti coatings. *JTST*. **18** (4), pp. 702–707, Ti
- [159] BALA N., SINGH H., PRAKASH S. High temperature corrosion behavior of cold spray Ni-20Cr coating on boiler steel in molten salt environment at 900 °C. *JTST*. **19** (1–2), pp. 110–118, NiCr
- [160] TOMA F.-L., STAHR C.C., BERGER L.-M., SAARO S., HERRMANN M., DESKA D. Corrosion resistance of APS- and HVOF-sprayed coatings in the Al2O3-TiO2 system. *JTST*. **19** (1–2), pp. 137–147, Al2O3-TiO2
- [161] KOIVULUOTO H., & VUORISTO P. Structural analysis of cold-sprayed nickel-based metallic and metallic-ceramic coatings. *JTST*. **19** (5), pp. 975–989, Ni, Ni-20Cu, Ni-20Cr, Ni-20Cr+50Al2O3, Ni-20Cr+30WC-CoCr
- [162] KIM J.-H., & LEE M.-H. A Study on cavitation erosion and corrosion behavior of Al-, Zn-, Cu-, and Fe-based coatings prepared by arc spraying. *JTST*. **19** (6), pp. 1224–1230, Zn, Zn-15Al, Al, Al-5Si, Al-12Si, Cu-7Al-0.5Fe, Cu-9Al-4Ni-4Fe-1.5Mg, 60Cu-40Zn-0.7Sn-0.05Pb, 420 stainless steel, 316 stainless steel
- [163] MATTHEWS S., & JAMES B. Review of thermal spray coating applications in the steel industry: Part 2 - Zinc pot hardware in the continuous galvanizing line. *JTST*. **19** (6), pp. 1277–1286, WC-Co, WC-CoCr, MoB-CoCr
- [164] HUSSAIN T., MCCARTNEY D.G., SHIPWAY P.H., MARROCCO T. Corrosion behavior of cold sprayed titanium coatings and free standing deposits. *JTST*. **20** (1–2), pp. 260–274, Ti
- [165] MARROCCO T., HUSSAIN T., MCCARTNEY D.G., SHIPWAY P.H. Corrosion performance of laser posttreated cold sprayed titanium coatings. *JTST*. **20** (4), pp. 909–917, TiO2, Cold Spray+Laser
- [166] ARMADA S., TILSET B.G., PILZ M., LILTVEDT R., BRATLAND H., ESPALLARGAS N. Sealing HVOF thermally sprayed WC-CoCr coatings by Sol-Gel methods. *JTST*. **20** (4), pp. 918–926, WC-CoCr/HVOF, Sealing
- [167] FAN X., LIU Y., XU Z., WANG Y., ZOU B., GU L. Preparation and characterization of 8YSZ thermal barrier coatings on rare earth-magnesium alloy. *JTST*. **20** (4), pp. 948–957, YSZ
- [168] LU W., WU Y., ZHANG J., HONG S., ZHANG J., LI G. Microstructure and corrosion resistance of plasma sprayed Fe-based alloy coating as an alternative to hard chromium. *JTST*. **20** (5), pp. 1063–1070, Fe-based alloy
- [169] CHANG C.H., JENG M.C., SU C.Y., HUANG T.S. A study of wear and corrosion resistance of arc-sprayed Ni-Ti composite coatings. *JTST*. **20** (6), pp. 1278–1285, Ni-Ti composite
- [170] AGÜERO A., CAMÓN F., GARCÍA DE BLAS J., DEL HOYO J.C., MUELAS R., SANTABALLA A. HVOF-deposited WCCoCr as replacement for hard Cr in landing gear actuators. *JTST*. **20** (6), pp. 1292–1309, WCCoCr

- [171] DEFORCE B.S., EDEN T.J., POTTER J.K. Cold spray Al-5% Mg coatings for the corrosion protection of magnesium alloys. *JTST*. **20** (6), pp. 1352–1358, Al-5%Mg
- [172] BILLAH BHATTY M., AHMAD KHALID F., NUSAIR KHAN A. Behavior of calcia-stabilized zirconia coating at high temperature, deposited by air plasma spraying system. *JTST*. **21** (1), pp. 121–131, CaZrO₃
- [173] BALA N., SINGH H., PRAKASH S., KARTHIKEYAN J. Investigations on the behavior of HVOF and cold sprayed Ni-20Cr coating on T22 boiler steel in actual boiler environment. *JTST*. **21** (1), pp. 144–158, Ni-20Cr
- [174] DZHURINSKIY D., MAEVA E., LESHCHINSKY Ev., MAEV R.Gr Corrosion protection of light alloys using low pressure cold spray. *JTST*. **21** (2), pp. 304–313, Al, Al+Al₂O₃, Al+Al₂O₃+Zn
- [175] FOSSATI A., DI FERDINANDO M., BARDI U., SCRIVANI A., GIOILLI C. Influence of surface finishing on the oxidation behaviour of VPS MCrAlY coatings. *JTST*. **21** (2), pp. 314–324, CoNiCrAlY
- [176] SEONG B.G., & HWANG S.Y. RIST, A Study on Thermal Spray Coatings of Recuperators, Thermal Spray 1996: Practical Solutions for Engineering Problems (ASM International), pp. 49–54, nickel and cobalt based self-fluxing alloys, iron based amorphous alloy and chromium carbide cermet coatings
- [177] NORMAND B., RENAUD F., CODDET C., TOURENNE F. The Effect of Spraying Conditions on the Corrosion Resistance of Titanium Coatings for Surgical Implants, Thermal Spray 1996: Practical Solutions for Engineering Problems (ASM International), pp. 73–78, Ti
- [178] ARSENAULT B., GU P., LEGOUX J.G., HARVEY B., FOURNIER J. Stainless Steel Coatings for Corrosion Protection of Steel Rebars, Thermal Spray 1996: Practical Solutions for Engineering Problems (ASM International), pp. 193–201, SUS316L
- [179] HOLLIS K.J., BARTLETT A., CASTRO R.G., NEISER R.A. Investigation of the Silicon Loss in APS MoSi₂ Under Typical Spray Conditions, Thermal Spray 1996: Practical Solutions for Engineering Problems (ASM International), pp. 429–437, MoSi
- [180] KATHIKEYAN J., BERNDT C.C., RISTORUCCI A., HERMAN H. Ceramic Impregnation of Plasma Sprayed Thermal Barrier Coatings, Thermal Spray 1996: Practical Solutions for Engineering Problems (ASM International), pp. 477–482, 8YZ
- [181] JOHN G., & TROCZYNSKI T. Surface Modification of Thermal Sprayed Coatings, Thermal Spray 1996: Practical Solutions for Engineering Problems (ASM International), pp. 483–488, sol-geled 8YZ
- [182] KUMPULAINEN E., VIPPOLA M., VUORISTO P., SORSA P., MANTYLA T. Characteristics of Phosphoric Acid Sealed Ceramic Oxide Coatings, Thermal Spray 1996: Practical Solutions for Engineering Problems (ASM International), pp. 489–491, Phosphoric acid sealed ceramic coatings
- [183] VARACALLE D.J., HAGRMAN D.L., FINCKE J.R., SWANK W.D., ZANCHUCK V., SAMPSON E. An Experimental Study of Twin-Wire Electric Arc Sprayed Zinc and Aluminum Coatings, Thermal Spray 1996: Practical Solutions for Engineering Problems (ASM International), pp. 717–723, twin-wire electric arc spraying of zinc and aluminum coatings
- [184] BORISOV Yu., BORISOVA A., GOLNIK V., MURASHOV A., BOBRIK V. Structure and Properties of Stainless Steels Coatings Produced by Supersonic Plasma Spraying Method, Thermal Spray 1996: Practical Solutions for Engineering Problems (ASM International), pp. 757–763, Stainless steel coating
- [185] ARSENAULT B., LEGOUX J.-G., HAWTHORNE H. Slurry Erosion of High Velocity Oxy-fuel Thermal Sprayed Coatings, Thermal Spray 1997: A United Forum for Scientific and Technological Advances (ASM International), pp. 97–106, Slurry erosion test
- [186] ROGNE T., SOLEM T., BERGET J. Effect of Metallic Matrix Composition on the Erosion-Corrosion Behavior of WC-Coatings, Thermal Spray 1997: A United Forum for Scientific and Technological Advances (ASM International), pp. 113–119, WC(Co/Cr/Mo/Ni) erosion-corrosion

- [187] NEVILLE A., & HODGKIESS T. The Corrosion Behaviour of a Cermet Coating Applied by HVOF Spraying, Thermal Spray 1997: A United Forum for Scientific and Technological Advances (ASM International), pp. 161–166, WC-Co-Cr
- [188] HODGKIESS T., & NEVILLE A. An Assessment of Galvanic Effects in Thermal Sprayed Coating Systems, Thermal Spray 1997: A United Forum for Scientific and Technological Advances (ASM International), pp. 167–173, many kind of
- [189] LADRU F., LUGSCHEIDER E., JUNGKLAUS H., HERBST C., KVERNES I. Tailored Solutions for Off-Shore Applications by Plazjet Sprayed Coatings, Thermal Spray 1997: A United Forum for Scientific and Technological Advances (ASM International), pp. 175–181, many kind of Off-shore application
- [190] LESTER T., HARRIS S.J., KINGERLEY D., MATTHEWS S. Thermally Sprayed Ternary Materials for Enhanced Corrosion Protection, Thermal Spray 1997: A United Forum for Scientific and Technological Advances (ASM International), pp. 183–189, Ternary coating system involving Aluminium, Zinc and Magnesium
- [191] KRETSCHMER I., HEIMGARTNER R., POLAK R., KAMMER P.A. New Fusible Alloys with Enhanced Corrosion Resistance, Thermal Spray 1997: A United Forum for Scientific and Technological Advances (ASM International), pp. 199–202, Fusible Ni-B-Si alloys with a variety of alloy additions (Cr, Mo, Cu etc.)
- [192] ISHIKAWA K., SUZUKI T., KITAMURA Y., TOBE S. Corrosion Resistance of Thermal Sprayed Titanium Coating with Resin Seal in Chloride Solution, Thermal Spray 1997: A United Forum for Scientific and Technological Advances (ASM International), pp. 203–208, Ti coating sealed with resin
- [193] KHANNA A.S., SRIDHAR K., DESHMUKH M.B. High Performance Super-Austenitic Surface Alloy Using Plasma Coating and Laser Treatment Thermal Spray 1997: A United Forum for Scientific and Technological Advances (ASM International), pp. 511–518, SUS316L coating
- [194] DENT A.H., HORLOCK A.J., MCCARTNEY D.G., HARRIS S.J. The Structure and Properties of Two Fe-Cr-B-Based Coatings Sprayed Using HVOF, Thermal Spray 1997: A United Forum for Scientific and Technological Advances (ASM International), pp. 917–923, Fe-Cr-based Armacor C™ coating
- [195] ALLAN M.L., BERNDT C.C., BROGAN J.A., OTTERSON D. Thermal Sprayed Polymer Coating for Corrosion Protection in a Biochemical Treatment Process, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 13–18, ethylene methacrylic acid (EMAA) and ethylene tetrafluoroethylene (ETFE)
- [196] ISHIKAWA K., SUZUKI T., TOBE S., KITAMURA Y. Resistance of Thermal Sprayed Duplex Coating Composed of Al and Ni-Cr Alloy Against Aqueous Corrosion, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 31–35, Al on Ni20Cr
- [197] TINNEA J.S. Field Performance of Sprayed Zinc Cathodic Protection Anodes, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 37–42, Zn
- [198] SRIDHAR K., KHANNA A.S., DESHMUKH M.B. Formation of Highly Corrosion Resistant Alloys Using Laser Surface Alloying, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 43–48, NiCr+Mo, laser alloy
- [199] LESTER T., KINGERLEY D.J., HARRIS S.J., MATTHEWS S.P. Thermally Sprayed Composite Coatings for Enhanced Corrosion Protection of Steel Structures, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 49–55, Zn, Al, Zn15Al, Al5Mg
- [200] GUILLEMANY J.M., de PACO J.M., MIGUEL J.R., SANCHEZ J., SMITH P. Corrosion Resistance HVOF Coatings Based Upon TiC+NiTi and (Ti, W) C+Ni, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 57–61, TiC+NiTi, (Ti, W)C+Ni, WC-Co, WC-CoCr, CrC-NiCr, Inconel

- [201] HODGKIESS T., & NEVILLE A. An Analysis of Environmental Factors Affecting Corrosion Behavior of Thermal Spray Cermet Coatings, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 63–68, WC-CoCr, NiCrSiB
- [202] NORMAND B., LIAO H., LANDEMARRE O., CODDET C., PAGETTI J. Corrosion Resistance of Thermal Spray Inconel 690 Coatings, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 69–73, Inconel690
- [203] HORLOCK A.J., DENT A.H., MCCARTNEY D.G., HARRIS S.J. Controlling The Sacrificial Corrosion Properties of Sprayed Aluminum Alloy Coatings, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 83–88, AlSn, AlSnCu
- [204] DVORAK M., & HEIMGARTNER P. Assessment of HVOF Coatings for Wet Corrosion Protection, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 95–100, NiCr, NiCrSiB, NiCrMoFeCuBSi, NiCrMoNb, CoNiCrMoBSi, WC-Co, CrC-NiCr
- [205] KNUUTTILA J., AHMANIEMI S., LEIVO E., SORSA P., VUORISTO P., MANTYLA T. Wet Abrasion and Slurry Erosion Resistance of Sealed Oxide Coatings, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 145–150, Al2O3, Cr2O3, Al2O3-ZrO2
- [206] GIROUD A., JOUANNY C., HEUZE J.L., GAILLARD F., GUIRALDENQ P. Friction and Corrosion Behavior of Different Ceramic Coatings (Oxides) Obtained by Thermal Spray for Qualification Tests in Sea Water, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 211–216, Al2O3, Cr2O3, Al2O3-Cr2O3
- [207] KIM H.-J., & KIM Y.J. Microstructural Evaluations of the Plasma Transferred Arc Coated Layers on the Hardness, Wear Resistance, and Corrosion for the Hardfacing of Ni- and Co-Based Alloys, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 217–224, Ni based 16C, Co based Stellite 6
- [208] BERGET J., BARDAL E., ROGNE T. Effects of Powder Composition on The Erosion, Corrosion and Erosion-Corrosion Properties of HVOF Sprayed Wc Based Coatings, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 305–312, WC-CoCr, WC-NiCr, WC-CoCrMo, WC-CrMoNi
- [209] OTSUBO F., ERA H., KISHITAKE K., MATSUMOTO H. High Corrosion Resistant Iron-Based Amorphous Coatings Obtained by Thermal Spraying, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 659–664, Fe based alloy
- [210] DENT A.H., HARRIS S.J., MCCARTNEY D.G. Microstructure And Corrosion Behaviour of HVOF Sprayed Nickel-Based Amorphous/Nanocrystalline Alloys, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 665–670, NiCrMoB
- [211] TANI K., HARADA Y., KOBAYASHI Y. Unusual Application of Plasma Sprayed Coating for Boiler Tubes in Oil-Fired Boilers, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 951–956, Ni50Cr
- [212] GUILLEMETTE R. The Development and Implementation of Thermal Spray Coatings for Helicopter Components, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 1033–1038, WC-Co, WC-CoCr, Cr2O3, NiCrSiB
- [213] MAGNEE A., OFFERGELD E., LEROY M., LEFORT A. Fe-Ai Intermetallic Coating Applications to Thermal Energy Conversion Advanced Systems, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 1091–1096, Fe-Al, Incoloy800H
- [214] KISUKI H., SUGANO M., OSHIMA T., NAKATA K., NASU Y., OKAZAKI K. Fatigue Behavior of Type 316L Stainless Steel Coated with Plasma-Sprayed Alumina in Corrosive Environment, Thermal Spray 1998: Meeting the Challenges of the 21st Century (ASM International), pp. 1115–1120, Al2O3
- [215] GUILLEMANY J.M., DE PACO J.M., MIGUEL J.R., LLIBRE J. Obtention and Development of Blends of Powder to Obtain Free-Standing Components Produced by HVOF Spray-Forming, Thermal