

Abrasion and erosion resistance of cermets : a review

Kübarsepp, Jakob; Juhani, Kristjan; Tarraste, Marek Materials 2022 / art. 69 <https://doi.org/10.3390/ma15010069> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

AC magnetic loss reduction of SLM processed Fe-Si for additive manufacturing of electrical machines

Tiismus, Hans; Kallaste, Ants; Belahcen, Anouar; Tarraste, Marek; Vaimann, Toomas; Rassõlkin, Anton; Asad, Bilal; Shams Ghahfarokhi, Payam Energies 2021 / 13 p. : ill <https://doi.org/10.3390/en14051241> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Alloying of TiC-FeCr cermet in manganese vapor

Kolnes, Märt; Tarraste, Marek; Kübarsepp, Jakob; Juhani, Kristjan; Viljus, Mart IOP conference series : materials science and engineering 2021 / art. 012043 <https://doi.org/10.1088/1757-899X/1140/1/012043>

Boron containing solid and superhard composites production techniques and properties [Electronic resource]

Kommel, Lembit; Kübarsepp, Jakob; Tarraste, Marek; Kolnes, Märt World PM2016 proceedings 2016 / [6] p. : ill. [USB]

Development of cemented carbides with high chromium iron alloy binder = Kõrge kroomisisaldusega rauasulamsideainega kõvasulamite arendus

Tarraste, Marek 2018 <https://digi.lib.ttu.ee/i/?9959> https://www.ester.ee/record=b5138025*est

Effect of carbon content on the microstructure and phases of (Ti,V,Nb,Cr,Mo)Cx high-entropy carbide

Anwar, Furqan; Tarraste, Marek; Berger, Lutz-Michael; Pötschke, Johannes Proceedings of the Estonian Academy of Sciences 2025 / p. 132-136 : ill <https://doi.org/10.3176/proc.2025.2.08>

Effect of carbon stabilizing elements on WC cemented carbides with chromium steel binder

Tarraste, Marek; Kübarsepp, Jakob; Juhani, Kristjan; Mere, Arvo; Viljus, Mart Materials science = Medžiagotyra 2019 / p. 202-206 : ill <https://doi.org/10.5755/j01.ms.25.2.19619> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Effect of high chromium content additions in iron-bonded Ti(C,N) cermets: a hardness-toughness tradeoff

Pampori, Tabeen Halawat; Kolnes, Märt; Juhani, Kristjan; Tarraste, Marek; Kübarsepp, Jakob Proceedings of the Estonian Academy of Sciences 2025 / p. 170-174 : ill <https://doi.org/10.3176/proc.2025.2.16>

Effect of pulsed deuterium plasma irradiation on dual-phase tungsten high-entropy alloys

Tökke, Siim; Laas, Tõnu; Priimets, Jaanis; Tarraste, Marek; Mikli, Valdek; Antonov, Maksim Fusion engineering and design 2022 / 11 p. : ill <https://doi.org/10.1016/j.fusengdes.2022.113260> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Effect of pulsed deuterium plasma irradiation on dual-phase tungsten medium-entropy alloys

Laas, Tõnu; Tökke, Siim; Paju-Hamburg, Jana; Tarraste, Marek; Mikli, Valdek; Antonov, Maksim; Priimets, Jaanis; Czarkowski, Piotr; Miklaszewski, Ryszard; Paduch, Marian Fusion engineering and design 2025 / art. 115229 <https://doi.org/10.1016/j.fusengdes.2025.115229>

Effect of sintering method on surface fatigue of carbide composites

Petrov, Mihhail; Kübarsepp, Jakob; Sergejev, Fjodor; Viljus, Mart; Tarraste, Marek Engineering materials and tribology XXV 2017 / p. 368-372 : ill <https://doi.org/10.4028/www.scientific.net/KEM.721.368> [Journal metrics at Scopus](#) [Article at Scopus](#)

Effect of the laser processing parameters on the selective laser melting of TiC-Fe-based cermets

Maurya, Himanshu Singh; Kollo, Lauri; Tarraste, Marek; Juhani, Kristjan; Sergejev, Fjodor; Prashanth, Konda Gokuldoss Journal of manufacturing and materials processing 2022 / art. 35, 11 p. : ill <https://doi.org/10.3390/jmmp6020035> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Erosion wear of reactive sintered WC-TiC-Co cermets

Tarraste, Marek; Juhani, Kristjan; Pirso, Jüri; Viljus, Mart Engineering materials & tribology XXII 2014 / p. 63-66 <https://doi.org/10.4028/www.scientific.net/KEM.604.63> [Conference proceedings at Scopus](#) [Article at Scopus](#) [Conference proceedings at WOS](#) [Article at WOS](#)

Erosive and impact-abrasive wear of hardmetals with Fe-based binders

Tarraste, Marek; Antonov, Maksim; Kolnes, Märt; Viljus, Mart; Ormus, Andres-Hardi Journal of the Japan Society of Powder and Powder Metallurgy 2025 / p. S1437-S1444 <https://doi.org/10.2497/jjspm.16F-T15-05>

Erosive Wear of Stainless Steel-Based Hardfacings with Ex-Situ and In-Situ Synthesized TiC

Yöyler, Sibel; Surženkov, Andrei; Tarraste, Marek; Kolnes, Mart; Juhani, Kristjan Coatings 2025 / art. 658 <https://doi.org/10.3390/coatings15060658>

Exploring microstructural properties, phase transformations, and wettability in high-chromium content iron-bonded

Ti(C,N)-based cermet

Pampori, Tabeen Halawat; Kolnes, Märt; Juhani, Kristjan; Tarraste, Marek; Maurya, Himanshu Singh; **Kübarsepp, Jakob** Journal of the Japan Society of Powder and Powder Metallurgy 2025 / p. S1533-S1540 <https://doi.org/10.2497/jpspm.16P-T14-06>

Ferritic chromium steel as binder metal for WC cemented carbides

Tarraste, Marek; Kübarsepp, Jakob; Juhani, Kristjan; Mere, Arvo; Kolnes, Märt; Viljus, Mart; Maaten, Birgit International journal of refractory metals and hard materials 2018 / p. 183-191 : ill <https://doi.org/10.1016/j.ijrmhm.2018.02.010> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Hardfacings for extreme wear applications

Kulu, Priit; Surženkov, Andrei; Tarbe, Riho; Saarna, Mart; Tarraste, Marek; Viljus, Mart Surface Modification Technologies XXVIII : proceedings of the Twenty Eighth International Conference on Surface Modification Technologies : Tampere University of Technology, Tampere, Finland, June 16-18, 2014 2015 / p. 149-157 : ill

High energy milling of WC-FeCr cemented carbide

Tarraste, Marek; Kübarsepp, Jakob; Juhani, Kristjan; Kolnes, Märt; Viljus, Mart Modern Materials and Manufacturing 2019 : 12th International DAAAM Baltic Conference and 27th International Baltic Conference BALTMATTRIB 2019. Selected, peer reviewed papers from the conference Modern Materials and Manufacturing 2019 (MMM 2019), April 24-26, 2019, Tallinn, Estonia 2019 / p. 136-141 : ill <https://www.scientific.net/KEM.799.136> https://www.ester.ee/record=b5235278*est <https://doi.org/10.4028/www.scientific.net/KEM.799.136> [Conference proceeding at Scopus](#) [Article at Scopus](#)

Impact of Nb content on the morphology and properties of Ti (C0.5N0.5)-FeCrMo-based green cermets

Maurya, Himanshu Singh; Tarraste, Marek; Viljus, Mart; Juhani, Kristjan; Sergejev, Fjodor; Kübarsepp, Jakob Ceramics international 2024 / 10 p <https://doi.org/10.1016/j.ceramint.2024.11.188>

Influence of strong carbide-forming elements (Nb and Ta) on the development of the green (Ti, Me)(C,N)-high chromium Fe-based cermets

Maurya, Himanshu Singh; Juhani, Kristjan; Tarraste, Marek; Viljus, Mart; Kumar, Rahul, 1993-; Hussain, Abrar; Sergejev, Fjodor; Kübarsepp, Jakob Vacuum 2024 / art. 113723, 12 p <https://doi.org/10.1016/j.vacuum.2024.113723> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

In-situ alloying of TiC-FeCr cermets in manganese vapour

Kolnes, Märt; Tarraste, Marek; Kübarsepp, Jakob; Juhani, Kristjan; Viljus, Mart Proceedings of the Estonian Academy of Sciences 2021 / p. 533-539 : ill <https://doi.org/10.3176/proc.2021.4.22> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Kermiste mikrostruktuur

Kolnes, Märt; Tarraste, Marek Horisont 2017 / lk. 20-21 : ill http://www.ester.ee/record=b1072243*est https://artiklid.elnet.ee/record=b2819541*est

Mechanical properties and microstructure of reactive sintered WC-TiC-Co cemented carbides

Tarraste, Marek; Juhani, Kristjan; Pirso, Jüri; Viljus, Mart; Letunovitš, Sergei Proceedings of the 2012 Powder Metallurgy World Congress & Exhibition 2012 https://www.researchgate.net/publication/239937576_Mechanical_Properties_and_Microstructure_of_Reactive_Sintered_WC-TiC-Co_Cemented_Carbides

Microstructure and properties of insitu high entropy alloy/tungsten carbide composites by mechanical alloying

Sokkalingam, Rathinavelu; Tarraste, Marek; Surreddi, Kumar Babu; Traksmaa, Rainer; Muthupandi, Veerappan; Sivaprasad, Katakam; Prashanth, Konda Gokuldoss Material design & processing communications 2020 / 9 p. : ill <https://doi.org/10.1002/mdp2.175> [Journal metrics at Scopus](#) [Article at Scopus](#)

Microstructure evolution of TiC cermets with ferritic AISI 430L steel binder

Kolnes, Märt; Mere, Arvo; Kübarsepp, Jakob; Viljus, Mart; Maaten, Birgit; Tarraste, Marek Powder metallurgy 2018 / p. 197-209 : ill <https://doi.org/10.1080/00325899.2018.1447268> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Microstructure evolution of WC-TiC-CO cemented carbides during reactive sintering

Tarraste, Marek; Juhani, Kristjan; Pirso, Jüri TÜ ja TTÜ doktorikool "Funktsionaalsed materjalid ja tehnoloogiad" : 04.-05. märts 2014, Tartu 2014 / [1] p. : ill

Microstructure evolution of WC-TiC-Co cemented carbides during reactive sintering [Electronic resource]

Tarraste, Marek; Juhani, Kristjan; Pirso, Jüri; Viljus, Mart; Traksmaa, Rainer; Letunovitš, Sergei Proceedings of the 18th Plansee Seminar : International Conference on Refractory Metals and Hard Materials : Reutte/Austria, 3-7 June, 2013 2013 / p. HM 70/1-HM 70/7 [CD-ROM]

Microstructure formation and performance of reactive sintered titanium oxycarbide base ceramic-ceramic composites

Juhani, Kristjan; Kübarsepp, Jakob; Tarraste, Marek; Pirso, Jüri; Viljus, Mart Modern Materials and Manufacturing 2019 : 12th

International DAAAM Baltic Conference and 27th International Baltic Conference BALTMATTRIB 2019. Selected, peer reviewed papers from the conference Modern Materials and Manufacturing 2019 (MMM 2019), April 24-26, 2019, Tallinn, Estonia 2019 / p. 131-135 : ill <https://www.scientific.net/KEM.799.131> https://www.ester.ee/record=b5235278*est <https://doi.org/10.4028/www.scientific.net/KEM.799.131> Conference proceeding at Scopus Article at Scopus

Optimization of hardmetal reinforcement content in Fe-based hardfacings for abrasive-impact wear conditions

Surženkov, Andrei; Tarbe, Riho; Tarraste, Marek; Simson, Taavi; Viljus, Mart; Kulu, Priit European Conference on Heat Treatment 2016 and 3rd International Conference on Heat Treatment and Surface Engineering in Automotive Applications : 11-13 May 2016, Prague, Czech Republic, Břevnov Monastery 2016 / [10] p. : ill

Optimization of reinforcement content of powder metallurgy hardfacings in abrasive wear conditions

Simson, Taavi; Kulu, Priit; Surženkov, Andrei; Tarbe, Riho; Viljus, Mart; Tarraste, Marek; Goljandin, Dmitri Proceedings of the Estonian Academy of Sciences 2016 / p. 90-96 : ill https://artiklid.elnet.ee/record=b2768203*est <https://doi.org/10.3176/proc.2016.2.03> Journal metrics at Scopus Article at Scopus Journal metrics at WOS Article at WOS

Optimization of structure of hardmetal reinforced iron-based PM hardfacings for abrasive wear conditions

Simson, Taavi; Kulu, Priit; Surženkov, Andrei; Goljandin, Dmitri; Tarbe, Riho; Tarraste, Marek; Viljus, Mart Engineering materials and tribology XXV 2017 / p. 351-355 <https://doi.org/10.4028/www.scientific.net/KEM.721.351> Conference proceedings at Scopus Article at Scopus

Performance of ceramic-metal composites as potential tool materials for friction stir welding of aluminium, copper and stainless steel

Kolnes, Mart; Kübarsepp, Jakob; Sergejev, Fjodor; Kolnes, Märt; Tarraste, Marek; Viljus, Mart Materials 2020 / art. 1994, 18 p. : ill <https://doi.org/10.3390/ma13081994> Journal metrics at Scopus Article at Scopus Journal metrics at WOS Article at WOS

Powder metallurgy of Al_{0.1}CoCrFeNi high-entropy alloy

Sokkalingam, Rathinavelu; Tarraste, Marek; Surreddi, Kumar Babu; Mikli, Valdek; Muthupandi, Veerappan; Sivaprasad, Katakam; Prashanth, Konda Gokuldoss Journal of materials research 2020 / p. 2835-2847 <https://doi.org/10.1557/jmr.2020.272> Journal metrics at Scopus Article at Scopus Journal metrics at WOS Article at WOS

Production of superhard carbon rich boron carbon (B_{11.72}C_{3.28}) based composite in the B₄C-Al-WC-Co-Cu system through SHS and SPS techniques [Electronic resource]

Kommel, Lembit; Tarraste, Marek; Kolnes, Märt; Veinthal, Renno; Kübarsepp, Jakob Euro PM2015 Congress & Exhibition : proceedings : 4-7 October 2015, Reims Congress Centre, Reims, France 2015 / [6] p. : ill. [USB]

Reactive sintering of bimodal WC-Co hardmetals

Tarraste, Marek; Juhani, Kristjan; Pirso, Jüri; Viljus, Mart Medžiagotyra = Materials science 2015 / p. 382-385 : ill <https://doi.org/10.5755/j01.ms.21.3.7511> Journal metrics at Scopus Article at Scopus Journal metrics at WOS Article at WOS

Reactive sintering of WC-Cr-Co hardmetals [Electronic resource]

Juhani, Kristjan; Pirso, Jüri; Tarraste, Marek; Viljus, Mart; Letunovitš, Sergei Proceedings of the 18th Plansee Seminar : International Conference on Refractory Metals and Hard Materials : Reutte/Austria, 3-7 June, 2013 2013 / [CD-ROM]

Selective laser melting of TiC-based cermet : HIP studies

Maurya, Himanshu Singh; Kollo, Lauri; Tarraste, Marek; Juhani, Kristjan; Sergejev, Fjodor; Prashanth, Konda Gokuldoss Transactions of the Indian Institute of Metals 2023 / p. 565-570 : ill <https://doi.org/10.1007/s12666-022-02684-5> Journal metrics at Scopus Article at Scopus Journal metrics at WOS Article at WOS

Selective laser melting of TiC-Fe via laser pulse shaping : microstructure and mechanical properties

Maurya, Himanshu Singh; Kollo, Lauri; Tarraste, Marek; Juhani, Kristjan; Sergejev, Fjodor; Prashanth, Konda Gokuldoss 3D Printing and Additive Manufacturing 2023 / p. 640-649 <https://doi.org/10.1089/3dp.2021.0221> Journal metrics at Scopus Article at Scopus Journal metrics at WOS Article at WOS

Sintering of high Mn cemented carbides in Mn-rich environment

Tarraste, Marek; Kübarsepp, Jakob; Juhani, Kristjan; Kolnes, Märt; Viljus, Mart; Mere, Arvo Defect and diffusion forum 2020 / p. 402-407 <https://doi.org/10.4028/www.scientific.net/DDF.405.402> Conference proceedings at Scopus Article at Scopus

Sliding Wear and Debris Evolution in LPBFed Ceramic-Reinforced Steel Composites Under Variable Loads and Temperatures

Maurya, Himanshu Singh; Kumar, Rahul, 1993-; Subramaniyan, Anand Kumar; Tarraste, Marek; Hussain, Abrar; Rahmani Ahranjani, Ramin; Juhani, Kristjan; Sergejev, Fjodor; Prashanth, Konda Gokuldoss Materials Chemistry and Physics 2025 / art. 131195 <https://doi.org/10.1016/j.matchemphys.2025.131195>

Spark plasma sintering of WC hardmetals with Fe-based binder [Electronic resource]

Tarraste, Marek; Kübarsepp, Jakob; Juhani, Kristjan; Suurkivi, Taavi; Pirso, Jüri World PM2016 proceedings 2016 / [6] p. : ill. [USB]

Synergistic effect of Nb and Mo on the microstructural formation of the Ti(C,N)-high chromium ferrous-based cermets
Maurya, Himanshu Singh; Juhani, Kristjan; Tarraste, Marek; Viljus, Mart; Sergejev, Fjodor; Pampori, Tabeen Halawat; Hussain, Abrar; Kübarsepp, Jakob International journal of refractory metals and hard materials 2024 / art. 106723
<https://doi.org/10.1016/j.ijrmhm.2024.106723> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

TalTechi teadur arutleb: millal käib “suur pauk”, mis kiirendab tööstuses alternatiivsete materjalide kasutamist?
Tarraste, Marek digi.geenius.ee 2023 [TalTechi teadur arutleb: millal käib “suur pauk”, mis kiirendab tööstuses alternatiivsete materjalide kasutamist?](#)

The effect of Cr and C on the characteristics of WC-FeCr hardmetals [Electronic resource]
Tarraste, Marek; Juhani, Kristjan; Kübarsepp, Jakob; Pirso, Jüri; Mikli, Valdek Euro PM2015 Congress & Exhibition : proceedings : 4-7 October 2015, Reims Congress Centre, Reims, France 2015 / [6] p. : ill. [USB]

The effect of spark plasma sintering thermal cycle on behaviour of Fe-based hardfacings reinforced with WC and WC-based hardmetal
Katinas, Egidijus; Antonov, Maksim; Jankauskas, Vytenis; Tarraste, Marek Modern Materials and Manufacturing 2019 : 12th International DAAAM Baltic Conference and 27th International Baltic Conference BALTMATTRIB 2019. Selected, peer reviewed papers from the conference Modern Materials and Manufacturing 2019 (MMM 2019), April 24-26, 2019, Tallinn, Estonia 2019 / p. [3]-8 : ill https://www.ester.ee/record=b5235278*est <https://www.scientific.net/KEM.799.3> <https://doi.org/10.4028/www.scientific.net/KEM.799.3> [Conference proceeding at Scopus](#) [Article at Scopus](#)

The effect of VC, TiC and Cr₃C₂ on the microstructure and properties of WC-15CO hardmetals fabricated by the reactive sintering
Pirso, Jüri; Juhani, Kristjan; Tarraste, Marek; Viljus, Mart; Letunovitš, Sergei Proceedings of the 9th International Conference of DAAAM Baltic Industrial Engineering, 24-26th April 2014, Tallinn, Estonia 2014 / p. 383-388 : ill

The effect of VC, TiC and Cr₃C₂ on the microstructure and properties of WC-15Co hardmetals fabricated by the reactive sintering
Pirso, Jüri; Juhani, Kristjan; Tarraste, Marek; Viljus, Mart; Letunovitš, Sergei Proceedings of the 9th International Conference of DAAAM Baltic Industrial Engineering, 24-26th April 2014, Tallinn, Estonia 2014 / p. 383-388 : ill

The influence of Cr₃C₂ and VC as alloying additives on the microstructure and properties of reactive sintered WC-Co cermets
Juhani, Kristjan; Pirso, Jüri; Viljus, Mart; Letunovitš, Sergei; Tarraste, Marek Materials science = Medžiagotyra 2012 / p. 79-83 : ill <https://matsc.ktu.lt/index.php/MatSc/article/view/1347>

The influence of processing parameters on mechanical properties of spark plasma sintered chromium carbide based cermets
Juhani, Kristjan; Pirso, Jüri; Tarraste, Marek; Viljus, Mart; Letunovitš, Sergei Materials Engineering 2017 : selected, peer reviewed papers from the 26th International Baltic Conference on Materials Engineering 2017, October 26-27, Kaunas, Lithuania 2017 / p. 162-166 <https://doi.org/10.4028/www.scientific.net/SSP.267.162> [Conference proceedings at Scopus](#) [Article at Scopus](#)

The science of sinter-HIP : when to turn on the gas
Yung, Der-Liang; Tarraste, Marek; Hussainova, Irina TÜ ja TTÜ doktorikool "Funktsionaalsed materjalid ja tehnoloogiad" : 04.-05. märts 2014, Tartu 2014 / [1] p

Three-body abrasive wear of reactive sintered WC-Co hardmetals with grain growth inhibitors
Juhani, Kristjan; Pirso, Jüri; Tarraste, Marek; Viljus, Mart; Suurkivi, Taavi Engineering materials & tribology XXII 2014 / p. 277-282 <https://doi.org/10.4028/www.scientific.net/KEM.604.277> [Conference proceedings at Scopus](#) [Article at Scopus](#) [Conference proceedings at WOS](#) [Article at WOS](#)

Three-body abrasive wear of WC-Co composites manufactured by reactive sintering of nanocrystalline powders [Electronic resource]
Juhani, Kristjan; Joost, Renee; Pirso, Jüri; Letunovitš, Sergei; Viljus, Mart; Tarraste, Marek 5th World Tribology Congress, WTC 2013 : [proceedings]. Vol. 3 2014 / p. 2084-2087. [CD-ROM]

Ultrafine cemented carbides with cobalt and iron binders prepared via reactive in situ sintering
Tarraste, Marek; Kübarsepp, Jakob; Mere, Arvo; Juhani, Kristjan; Kolnes, Märt; Viljus, Mart Solid state phenomena ; 320 2021 / p. 176-180 <https://doi.org/10.4028/www.scientific.net/SSP.320.176> [Conference Proceedings at Scopus](#) [Article at Scopus](#)

Wear behavior of ceramic-metal composites as tool material for FSW of copper
Kolnes, Mart; Kübarsepp, Jakob; Sergejev, Fjodor; Kolnes, Märt; Tarraste, Marek; Viljus, Mart Solid state phenomena ; 320 2021 / p. 144-149 <https://doi.org/10.4028/www.scientific.net/SSP.320.144> [Conference proceedings at Scopus](#) [Article at Scopus](#)

Wear resistance of sintered composite hardfacings under different abrasive wear conditions

Simson, Taavi; Kulu, Priit; Surženkov, Andrei; Tarbe, Riho; Goljandin, Dmitri; Tarraste, Marek; Viljus, Mart; Traksmäa, Rainer Medžiagotyra = Materials science 2017 / p. 249-253 : ill <https://doi.org/10.5755/j01.ms.23.3.17640> [Journal metrics at Scopus](#)
[Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)