

# A study of the lubricating mechanism of molybdenum dithiocarbamate

Wear

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Citation Report

#	ARTICLE	IF	CITATIONS
1	Friction changes in ion-implanted steel. <i>Journal of Materials Science</i> , 1973, 8, 900-904.	3.7	52
2	A study of the tribo-chemical oxidation of molybdenum disulphide using X-ray photo-electron spectroscopy. <i>Wear</i> , 1974, 29, 129-133.	3.1	19
3	Molybdenum disulphide in lubrication. A review. <i>Wear</i> , 1975, 35, 1-22.	3.1	93
4	Calculated specific surface energy of molybdenite (MoS <sub>2</sub> ). <i>Physical Review B</i> , 1976, 14, 5392-5395.	3.2	55
5	Transition metal sulfides. <i>Progress in Solid State Chemistry</i> , 1976, 10, 207-270.	7.2	226
6	Effect of Substrate Surface Finish on the Lubrication and Failure Mechanisms of Molybdenum Disulfide Films. <i>ASLE Transactions</i> , 1982, 25, 141-156.	0.6	58
7	Morphological properties of sputtered MoS <sub>2</sub> films. <i>Wear</i> , 1983, 91, 281-288.	3.1	72
8	Oil-soluble MO-S compounds as lubricant additives. <i>Wear</i> , 1984, 100, 281-300.	3.1	144
9	Chapter 19 Lubrication by Solids. <i>Tribology Series</i> , 1985, 9, 549-614.	0.1	1
10	Chemical and Structural Effects on the Lubrication Properties of Sputtered MoS <sub>2</sub> Films. <i>Tribology Transactions</i> , 1988, 31, 239-250.	2.0	153
12	Micromechanics of MoS <sub>2</sub> lubrication. <i>Wear</i> , 1993, 162-164, 480-491.	3.1	19
14	An investigation of the effect of surface roughness and coating thickness on the friction and wear behaviour of a commercial MoS <sub>2</sub> metal coating on AISI 400C steel. <i>Wear</i> , 2000, 237, 283-287.	3.1	61
15	Thin films of fullerene-like MoS <sub>2</sub> nanoparticles with ultra-low friction and wear. <i>Nature</i> , 2000, 407, 164-167.	27.8	798
16	Helical self-assembled polymers from cooperative stacking of hydrogen-bonded pairs. <i>Nature</i> , 2000, 407, 167-170.	27.8	647
17	Contact Pressure Dependency in Frictional Behavior of Burnished Molybdenum Disulphide Coatings. <i>Tribology Transactions</i> , 2001, 44, 147-151.	2.0	24
18	Lubrication Properties of Cationic Surfactant-Adsorbed Molybdenum Disulfide as a Bonded Film Lubricant. <i>Tribology Transactions</i> , 2003, 46, 211-216.	2.0	2
19	The Structural and Tribological Properties of MoS <sub>2</sub> -Ti Composite Solid Lubricants. <i>Tribology Transactions</i> , 2004, 47, 218-226.	2.0	32
20	Lubrication of polycarbonate at cryogenic temperatures in the split Hopkinson pressure bar. <i>International Journal of Impact Engineering</i> , 2005, 31, 523-544.	5.0	64

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21	Co-sputtered Mo:S:C:Ti:B based coating for tribological applications. Surface and Coatings Technology, 2005, 200, 1724-1730.	4.8	11
22	Synthesis of nanometric molybdenum disulphide particles and evaluation of friction and wear properties. Lubrication Science, 2005, 17, 295-308.	2.1	30
23	Study of solid lubrication with MoS <sub>2</sub> coating in the presence of additives using reciprocating ball-on-flat scratch tester. Sadhana - Academy Proceedings in Engineering Sciences, 2008, 33, 207-220.	1.3	59
24	Aerosol-Assisted Chemical Vapor Deposition of Lubricating MoS <sub>2</sub> Films. Ferrous Substrates and Titanium Film Doping. Chemistry of Materials, 2008, 20, 5438-5443.	6.7	36
25	Mechanics of Deformation under Traction and Friction of a Micrometric Monolithic MoS <sub>2</sub> Particle in Comparison with those of an Agglomerate of Nanometric MoS <sub>2</sub> Particles. Tribology Letters, 2010, 37, 239-249.	2.6	19
26	Microtribology and Friction-Induced Material Transfer in Layered MoS <sub>2</sub> Nanoparticles Sprayed on a Steel Surface. Tribology Letters, 2010, 37, 313-326.	2.6	35
27	Deformation and friction of MoS <sub>2</sub> particles in liquid suspensions used to lubricate sliding contact. Thin Solid Films, 2010, 518, 5995-6005.	1.8	39
28	Friction of molybdenum disulfide-titanium films under cryogenic vacuum conditions. Tribology International, 2011, 44, 1819-1826.	5.9	27
29	Tribological Properties of NiCr-Cr <sub>3</sub> C <sub>2</sub> -Ni / MoS <sub>2</sub> ; Supersonic Plasma Sprayed Coating under Different Temperatures. Advanced Materials Research, 0, 399-401, 2061-2066.	0.3	1
30	Friction between a Steel Ball and a Steel Flat Lubricated by MoS <sub>2</sub> Particles Suspended in Hexadecane at 150 Å°C. Industrial & Engineering Chemistry Research, 2012, , 120917103743003.	3.7	6
31	Hysteresis in Single-Layer MoS <sub>2</sub> Field Effect Transistors. ACS Nano, 2012, 6, 5635-5641.	14.6	956
32	Polycarbonate/molybdenum disulfide/carbon black composites: Physicomechanical, thermal, wear, and morphological properties. Polymer Composites, 2012, 33, 619-628.	4.6	12
33	Microstructure, thermal, physico-mechanical and tribological characteristics of molybdenum disulphide-filled polyamide 66/carbon black composites. Polymer Engineering and Science, 2013, 53, 1676-1686.	3.1	9
34	Atomistic simulations of nanoindentation on the basal plane of crystalline molybdenum disulfide (MoS <sub>2</sub> ). Modelling and Simulation in Materials Science and Engineering, 2013, 21, 045003.	2.0	133
35	The Effects of Environmental Water and Oxygen on the Temperature-Dependent Friction of Sputtered Molybdenum Disulfide. Tribology Letters, 2013, 52, 485-493.	2.6	105
36	Polyamide 6/carbon black/molybdenum disulphide composites: Friction, wear and morphological characteristics. Materials Chemistry and Physics, 2013, 138, 658-665.	4.0	22
37	A volumetric fractional coverage model to predict frictional behavior for in situ transfer film lubrication. Wear, 2013, 304, 173-182.	3.1	9
39	Phase transformation in monolayer molybdenum disulphide (MoS <sub>2</sub> ) under tension predicted by molecular dynamics simulations. Scripta Materialia, 2014, 76, 41-44.	5.2	36

#	ARTICLE	IF	CITATIONS
40	Surface and Subsurface Contributions of Oxidation and Moisture to Room Temperature Friction of Molybdenum Disulfide. Tribology Letters, 2014, 53, 329-336.	2.6	88
41	Atomic mechanism of the semiconducting-to-metallic phase transition in single-layered MoS <sub>2</sub> . Nature Nanotechnology, 2014, 9, 391-396.	31.5	1,146
42	Origin of the Phase Transition in Lithiated Molybdenum Disulfide. ACS Nano, 2014, 8, 11447-11453.	14.6	111
43	Shear-induced particle size segregation in composite powder transfer films. Powder Technology, 2014, 264, 133-139.	4.2	7
44	Mechanism of Friction and Wear in MoS <sub>2</sub> and ZDDP/F-PTFE Greases under Spectrum Loading Conditions. Lubricants, 2015, 3, 687-711.	2.9	18
45	Synthesis and properties of molybdenum disulphide: from bulk to atomic layers. RSC Advances, 2015, 5, 7495-7514.	3.6	288
46	Role of MoS <sub>2</sub> morphology on wear and friction under spectrum loading conditions. Lubrication Science, 2015, 27, 429-449.	2.1	18
47	Highly Oriented MoS <sub>2</sub> Coatings: Tribology and Environmental Stability. Tribology Letters, 2016, 64, 1.	2.6	37
48	Aligned MoO <sub>x</sub> /MoS <sub>2</sub> Core-Shell Nanotubular Structures with a High Density of Reactive Sites Based on Self-Ordered Anodic Molybdenum Oxide Nanotubes. Angewandte Chemie - International Edition, 2016, 55, 12252-12256.	13.8	100
49	Aligned MoO <sub>x</sub> /MoS <sub>2</sub> Core-Shell Nanotubular Structures with a High Density of Reactive Sites Based on Self-Ordered Anodic Molybdenum Oxide Nanotubes. Angewandte Chemie, 2016, 128, 12440-12444.	2.0	14
50	Crystal structure and hydrogen storage behaviors of Mg/MoS <sub>2</sub> composites from ball milling. Journal Wuhan University of Technology, Materials Science Edition, 2016, 31, 773-778.	1.0	3
51	Temperature-Dependent Friction and Wear Behavior of PTFE and MoS <sub>2</sub> . Tribology Letters, 2016, 63, 1.	2.6	47
52	Influence of C dopant on the structure, mechanical and tribological properties of r.f.-sputtered MoS <sub>2</sub> /a-C composite films. Applied Surface Science, 2016, 364, 249-256.	6.1	57
53	Interactions between MoS <sub>2</sub> nanotubes and conventional additives in model oils. Tribology International, 2017, 110, 140-150.	5.9	35
54	The role of humidity and oxygen on MoS <sub>2</sub> thin films deposited by RF PVD magnetron sputtering. Surface and Coatings Technology, 2017, 319, 345-352.	4.8	43
55	The Tribological Mechanism of MoS <sub>2</sub> Film under Different Humidity. Tribology Letters, 2017, 65, 1.	2.6	38
56	Wear and Friction of Greases Containing Organic and Inorganic Sulfur Carriers. Tribology Online, 2017, 12, 162-170.	0.9	4
57	The Self-Ordered Lamellar Texture of MoS <sub>2</sub> Transfer Film Formed in Complex Lubrication. Advanced Materials Interfaces, 2018, 5, 1701682.	3.7	12

#	ARTICLE	IF	CITATIONS
58	Mechanism of Antiwear Property Under High Pressure of Synthetic Oil-Soluble Ultrathin MoS <sub>2</sub> Sheets as Lubricant Additives. <i>Langmuir</i> , 2018, 34, 1635-1644.	3.5	43
59	Physiochemical Properties of Hexagonal Boron Nitride Blended Coconut Oil. <i>SSRN Electronic Journal</i> , 2018, , .	0.4	0
60	Effect of Hygrothermal Ageing on Tribological Behaviour of PTFE-Based Composites. <i>Lubricants</i> , 2018, 6, 103.	2.9	4
61	The importance of spectrum loading in 2% milled MoS <sub>2</sub> powder greases using four ball wear test. <i>Industrial Lubrication and Tribology</i> , 2018, 70, 1670-1675.	1.3	3
62	MoDTC Tribochemistry in Steel/Steel and Steel/Diamond-Like-Carbon Systems Lubricated With Model Lubricants and Fully Formulated Engine Oils. <i>Journal of Tribology</i> , 2019, 141, .	1.9	22
63	Solid Lubrication with MoS <sub>2</sub> : A Review. <i>Lubricants</i> , 2019, 7, 57.	2.9	320
64	Monodisperse Cu nanoparticles @ MoS <sub>2</sub> nanosheets as a lubricant additive for improved tribological properties. <i>Applied Surface Science</i> , 2019, 494, 430-439.	6.1	92
65	Investigation of the Tribofilm Formation of HiPIMS Sputtered MoS <sub>x</sub> Thin Films in Different Environments by Raman Scattering. <i>Lubricants</i> , 2019, 7, 100.	2.9	9
66	Friction reduction of water based lubricant with highly dispersed functional MoS <sub>2</sub> nanosheets. <i>Colloids and Surfaces A: Physicochemical and Engineering Aspects</i> , 2019, 562, 321-328.	4.7	58
67	Formation of Coherent 1Hâ€“1T Heterostructures in Single-Layer MoS <sub>2</sub> on Au(111). <i>ACS Nano</i> , 2020, 14, 16939-16950.	14.6	29
68	Fabrication of a Silicaâ€“Silica Nanoparticle Monolayer Array Nanocomposite Film on an Anodic Aluminum Oxide Substrate and Its Optical and Tribological Properties. <i>ACS Applied Materials &amp; Interfaces</i> , 2020, 12, 27672-27681.	8.0	4
69	Supergiant elasticity and fracture of 3D spirally wound $\text{MoS}_2$ . <i>International Journal of Fracture</i> , 2020, 223, 39-52.	2.2	6
70	Size-dependent phase stability in transition metal dichalcogenide nanoparticles controlled by metal substrates. <i>Nanoscale</i> , 2021, 13, 10167-10180.	5.6	4
71	Graphite oxide tribo-layer formation under boundary lubrication of diesel fuel. <i>IOP Conference Series: Materials Science and Engineering</i> , 2021, 1087, 012075.	0.6	1
72	Molybdenum/tungsten disulfide solid solutions nanoparticles formation by aerosol-assisted CVD. <i>Solid State Sciences</i> , 2021, 115, 106583.	3.2	4
73	Structurally Driven Environmental Degradation of Friction in MoS <sub>2</sub> Films. <i>Tribology Letters</i> , 2021, 69, 1.	2.6	13
74	Roadmap and Direction toward High-Performance MoS <sub>2</sub> Hydrogen Evolution Catalysts. <i>ACS Nano</i> , 2021, 15, 11014-11039.	14.6	179
75	Molecular Dynamics Simulation on Collision Frictional Properties of a Molybdenum Disulfide (MoS <sub>2</sub> ) Film in Microgravity Environment. <i>Microgravity Science and Technology</i> , 2021, 33, 1.	1.4	6

#	ARTICLE	IF	CITATIONS
76	Tribological properties of Mo-S-C coating deposited by pulsed d.c. magnetron sputtering. <i>Wear</i> , 2021, 480-481, 203939.	3.1	3
77	Frictional Changes Induced by the Ion Implantation of Steel. , 1973, , 423-436.		10
78	Friction changes in ion-implanted steel. <i>Journal of Materials Science</i> , 1973, 8, 900-904.	3.7	1
79	Tribological behavior and wear prediction of molybdenum disulfide grease lubricated rolling bearings under variable loads and speeds via experimental and statistical approach. <i>Wear</i> , 2017, 376-377, 876-884.	3.1	24
80	Enhancement of Dry Sliding Tribological Characteristics of Perforated Zirconia Toughened Alumina Ceramic Composite Filled With Nano MoS <sub>2</sub> in High Vacuum. <i>Journal of Tribology</i> , 2021, 143, .	1.9	10
81	Solid Lubricants. , 1988, , 269-290.		10
82	The Surface Deformation Caused on Natural Molybdenite by Abrasion. <i>Shinku/Journal of the Vacuum Society of Japan</i> , 1973, 16, 438-442.	0.2	1
84	Anisotropic strain in epitaxial single-layer molybdenum disulfide on Ag(110). <i>Nanoscale</i> , 2021, 13, 18789-18798.	5.6	5
85	Role of Environment on the Shear-Induced Structural Evolution of MoS <sub>2</sub> and Impact on Oxidation and Tribological Properties for Space Applications. <i>ACS Applied Materials &amp; Interfaces</i> , 2022, 14, 13914-13924.	8.0	15
86	Temperature-dependent anomalous energy transport in finite-length quasi-one-dimensional $\text{MoS}_2$ : Crossover from phonons to solitons. <i>Physical Review B</i> , 2021, 104, .		
87	Controllable fabrication of magnesium silicate hydroxide reinforced MoS <sub>2</sub> hybrid nanomaterials as effective lubricant additives in PAO. <i>Applied Surface Science</i> , 2022, 597, 153777.	6.1	16
88	Interactions of Water with Pristine and Defective MoS <sub>2</sub> . <i>Langmuir</i> , 2022, 38, 10419-10429.	3.5	4
89	Structure and tribological properties of sputtered Cu-modified MoS <sub>2</sub> films. <i>Applied Surface Science</i> , 2023, 610, 154884.	6.1	1
90	A comparative analysis of different van der Waals treatments for molecular adsorption on the basal plane of 2H-MoS <sub>2</sub> . <i>Surface Science</i> , 2023, 729, 122226.	1.9	5
91	In-situ research on formation mechanisms of transfer films of a Polyimide-MoS <sub>2</sub> composite in vacuum. <i>Tribology International</i> , 2023, 180, 108211.	5.9	6
92	From $\text{2D}$ materials to polymer nanocomposites with emerging multifunctional applications: A critical review. <i>Polymer Composites</i> , 2023, 44, 1438-1470.	4.6	14
94	Application of MoS <sub>2</sub> in the space environment: a review. <i>Frontiers of Mechanical Engineering</i> , 2023, 18, .	4.3	0
95	The size effect of molybdenum disulphide additives on friction and wear performance of lithium-thickened palm olein grease. <i>Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology</i> , 0, , .	1.8	0

#	ARTICLE	IF	CITATIONS
96	Advances in development of solid lubricating MoS <sub>2</sub> coatings for space applications: A review of modeling and experimental approaches. Tribology International, 2024, 192, 109194.	5.9	1
97	Improving dispersion and tribological performance of MoS <sub>2</sub> lubricant additive with the synergistic effects of MSH and amorphous carbon. Journal of Materials Research and Technology, 2024, 29, 2509-2519.	5.8	0
98	Water adsorption on MoS <sub>2</sub> under realistic atmosphere conditions and impacts on tribology. RSC Advances, 2024, 14, 4717-4729.	3.6	0