HSE science and research publications 2020

- Journal papers
- Conference publications
- Book chapters
- Reports by HSE scientists and expert committees
- Reports prepared for HSE by other organisations
- Published Interviews with HSE scientists and analysts

Journal papers

Aldridge, T., Gunawan, O., Moore, R., Cole, S., Boyce, G. and Cowling, R. (2020) Developing an impact library for forecasting surface water flood risk.*Journal of Flood Risk Management*, 13 (3), e12641, (open access)

Bacon, J., Butler, O., Warren, R., Cairns, J., Cook, C., Davidson, C., O. and Mertz-Kraus, R. (2020) Atomic spectrometry update - a review of advances in environmental analysis. *Journal of Analytical Atomic Spectrometry,* 35 (1), 9-53

Beswick, A., Bailey, C., Crook, B., Crouch, D., Farrant, J., Frost, G. and Stagg, S. (2020) Performance testing of a Venturi-based backpack spray decontamination system. *Applied Biosafety Journal,* 25 (1), 28-40 (open access)

Brescia, S. (2020) Thresholds of adversity and their applicability to endocrine disrupting chemicals. *Critical Reviews in Toxicology*, 50 (3), 213-218

Burden, N., Benstead, R., Benyon, K., Clook, M., Green, C., Handley, J., Harper, N., Maynard, S., Mead, C., Pearson, A., Ryder, K., Sheahan, D., Van Egmond, R., Wheeler, J. and Hutchinson, T. (2020) Key Opportunities to Replace, Reduce, and Refine Regulatory Fish Acute Toxicity Tests. . *Environmental Toxicology and Chemistry,* 39 (10), 2076-2089 (open access)

Chen, H., Buston, J., Gill, J., Howard, D., Williams, R., Rao Vendra, C., Shelke, A. and Wen, J. X. (2020) An experimental study on thermal runaway characteristics of lithium-ion batteries with high specific energy and prediction of heat release rate. *Journal of Power Sources,* 472 228585

Clay, M. F., Kidd, M., Gale, A., Boardman, T., Murphy, J., Wynn, T., Naylor, S. and Ellwood, J. (2020) Understanding loss of containment of non-radiological chemotoxic materials in the civil nuclear and process industries. *Process Safety and Environmental Protection*, 136, 203-213

Crook, B., Willerton, L., Smith, D., Wilson, L., Poran, V., Helps, J. E. and Mcdermott, P. (2020) Legionella risk in evaporative cooling systems and underlying causes of associated breaches in health and safety compliance. *International Journal of Hygiene and Environmental Health,* 224, 113425 (open access)

Fishwick, D. (2020) Allergy and immunotoxicology in Occupational Health. *Occupational Medicine*, 70(3), 211

Franken, R., Shandilya, N., Marquart, H., Mcnally, K. and Fransman, W. (2020) Extrapolating the Applicability of Measurement Data on Worker Inhalation Exposure to Chemical Substances. *Annals of Work Exposures and Health*, 64(3), 250-269

Gill, J., Atkinson, G., Cowpe, E., Phylaktou, H. and Andrews, G. (2020) Experimental investigation of potential confined ignition sources for vapour cloud explosions. *Process Safety and Environmental Protection,* 135 (open access)

Harris, E., D'angelo, S., Darnton, A. and Coggon, D. (2020) Relative burden of lung and pleural cancers from exposure to asbestos: a cross-sectional analysis of occupational mortality in England and Wales. *BMJ Open,* 10 (4), e036319 (open access)

Harris, W., Soutis, C. and Atkin, C. (2020) Impact response of curved composite laminates: effect of radius and thickness. *Applied Composite Materials*, 27, 555-573 (open access)

Harris, W., Soutis, C., Gresil, M. and Atkin, C. (2020) Pressure response and life assessment of filament-wound composite pipes after impact. *International Journal of Lightweight Materials and Manufacture,* 3 (4), 365-375 (open access)

Hidajat, M., Mcelvenny, D., Ritchie, P., Darnton, A., Mueller, W., Agius, R., Cherrie, J. and De Vocht, F. (2020) Lifetime cumulative exposure to rubber dusts, fumes and N-nitrosamines and non-cancer mortality : a 49-year follow-up. *Occupational and Environmental Medicine,* 77 (5), 316-323 (open access)

Jones, K. (2020) Human Biomonitoring in occupational health for exposure assessment. *Portuguese Journal of Public Health*, 38 (1), 2-5 (open access)

Jones, K. (2020) Occupational Biological Monitoring - is now the time? *Industrial Health*, 58 (6), 489-491 (open access)

Jones, K., Basinas, I., Kromhout, H., Van Tongeren, M., Harding, A.-H., Cherrie, J., Povey, A., Ahmad, Z., Fuhrimann, S., Ohlander, J., Vermeulen, R. and Galea, K. (2020) Improving exposure assessment methodologies for epidemiological studies on pesticides: study protocol. *JMIR Research Protocols,* 9 (2), e16448 (open access)

Makison Booth, C. and Frost, G. (2020) Survival of a norovirus surrogate on surfaces in synthetic gastric fluid.*Journal of Hospital Infection*, 105 (3), 468-473 (open access)

Mason, H., Carder, M., Money, A., Evans, G., Seed, M., Agius, R. and Van Tongeren, M. (2020) Occupational asthma and its causation in the UK seafood processing industry. *Annals of Work Exposures and Health*, wxaa055 (open access)

Mazzola, T. and Gant, S. (2021) Results of comparisons of the predictions of 17 dense gas dispersion models with observations from the Jack Rabbit II chlorine field experiment. *Atmospheric Environment,* 244, 117887

Ohlander, J., Fuhrimann, S., Basinas, I., Cherrie, J., Galea, K., Povey, A., Van Tongeren, M., Harding, A.-H., Jones, K., Vermeulen, R. and Kromhout, H. (2020) Systematic review of methods used to assess exposure to pesticides in occupational epidemiology studies, 1993-2017. *Occupational and Environmental Medicine,* 77 (6), 357-367 (open acess)

Pengelly, I. (2020) Thermal Desorption Part 1: Introduction and Instrumentation. Analytical Methods Committee Technical Brief No. 97. *Analytical Methods*, 12 3425-3428

Poole, C. J. M., Robinson, E. and Frost, G. (2020) Sensory perception testing by monofilaments in the digits of controls and workers with HAVS. *International Archive of Occupational and Environmental Health*, 93 (6), 723-731 (open access)

Ruiter, S., Kuijpers, E., Saunders, J., Snawder, J., Warren, N., Gorce, J.-P., Blom, M., Krone, T., Bard, D., Pronk, A. and Cauda, E. (2020) Exploring evaluation variables for low-cost particulate matter monitors to assess occupational exposure. *International Journal of Environmental Research and Public Health*, 17 (22), 8602

Sadhra, S., Mohammed, N., Kurmi, O., Fishwick, D., De Matteis, S., Hutchings, S., Jarvis, D., Ayres, J. and Rushton, L. (2020) Occupational exposure to inhaled pollutants and risk of airflow obstruction: a large UK population-based UK Biobank cohort. *Thorax,* 75 468-475 (open access)

Scholten, B., Kenny, L., Duca, R., Pronk, A., Santonen, T., Galea, K., Loh, M., Huumonen, K., Sleeuwenhoek, A. J., Creta, M., Godderis, L. and Jones, K. (2020) Biomonitoring for occupational exposure to diiocyanates: a systematic review. *Annals of Work Exposures and Health*, 64 (6), 569-585

Stacey, P., Clegg, F., Morton, J. and Sammon, C.(2020) An indirect Raman spectroscopy method for the quantitative measurment of respirable crysalline silica collected on filters inside respiratory equipment. *Analytical Methods,* 12 (21), 2757-2771,(open access)

Stewart, J. (2020) CFD modelling of underexpanded hydrogen jets exiting rectangular shaped openings.*Process Safety and Environmental Protection* 139, 283-296 (open access)

Thompson, P., Yates, T., Inan, E. and Ananiadou, S. (2020) Semantic annotation for improved safety in construction work. *Proceedings of the LREC 2020*, 1983-1992,

Verpaele, S. and Butler, O. (2020) Measurement of Trace Metals and Metalloids. Deliberations from an ASTM Workshop. *AIHA Synergist Journal, Aug 2020*

Viegas, S., Zare Jeddi, M., Hopf, N., Bessems, J., Palmen, N., Galea, K., Jones, K., Kujath, P., Duca, R., Verhagen, H., Santonen, T. and Pasanen-Kase, R. (2020) Biomonitoring as an Underused Exposure Assessment Tool in Occupational Safety and Health Context-Challenges and Way Forward. . *International Journal of Environmental Research and Public Health,* 17 (16), 5884 (open access)

Yatkin, S., Trzepla, K., Hyslop, N., White, W., Butler, O., Ancelet, T., Davy, P., Gerboles, M., Kohl, S., Mcwilliams, A., Saucedo, L., Van Der Haar, M. and Jonkers, A. (2020) Comparison of a priori and interlaboratory-measurement-consensus approaches for value assignment of multi-element reference materials on PTFE filters. *Microchemical Journal,* 158 (open access)

Zehra, S. and Barry, M. (2020) 29 Clinicopathological and Molecular Profiling of Breast Cancer in Very Young Versus Young Pre-Menopausal Women - A Population-Based Cohort Study,. *European Journal of Surgical Oncology,* 46 (6), e9

Conference publications

Bannister, A., Nemcova, A., Johnson, D. and Blackburn, M. Selection and deployment of non-destructive testing for through-life integrity assurance of composite-repaired pipes. *Hazards 30,* 26-27 Nov 2020, Paper 23

Batt, R., Tickle, G. and Turner, M. Development of a model for spills of liquids on porous surfaces (SLOPS). *Hazards 30*, 26-27 Nov 2020, Paper 05

Bell, J., Raza, S. and Brockington, P. Behaviour in emergencies on COMAH sites: challenging predictive assumptions about likely fatalities based on actual behaviours in emergencies. *Hazards 30*, 26-27 Nov 2020, Paper 25

Chambers, C. Comparison of a single initiating event verses a multiple initiating event approach to Layer of Protection Analysis. *Hazards 30*, 26-27 Nov 2020, Paper 09

Clay, M., Garcia, M., Wardman, M. and Kidd, M. Occupational safety and process safety: sisters, cousins or unrelated? *Hazards 30,* 26-27 Nov 2020, Paper 53

Gant, S., Giles, A., Bettis, R. and Bowen, P. Flammable mist hazards involving high-flashpoint fluids. *Mary Kay O'Connor Process Safety Centre 23rd Annual Process Safety International Symposium*, College Station, Texas, 20-21 Oct 2020 (full text will be available on conference site one year after the conference)

Hare, J. Pilot scale reactor venting experiments for gassy systems and the implications for vent sizing. *Hazards 30,* Manchester, UK, 26-27 Nov 2020, Paper 33

Hynds, A. and Templeton, S. Safe reinstatement of process plant. Learning from HSE's regulation of the UK offshore oil and gas industry. *Hazards 30*, 26-27 Nov 2020, Paper 58

Rattigan, W. Safe operation of combined cycle gas turbine and gas engine systems using hydrogen rich fuels. *Hazards 30*, 26-27 Nov 2020, Paper 06

Book chapters

Barber, C. and Barnes, H. Occupational hypersensitivity pneumonitis. In: ed, *Occupational and Environmental Lung Disease*, 2020 https://doi.10..1183/2312508X.100034519

Crook, B. Occupational Exposure to Biological Agents. In: ed, *Latest News on Occupational Health*, Open Access eBooks, 2020 http://openaccessebooks.com/latest-news-on-occupational-health.html (open access)

Mason, H. (2020) Respiratory health risks from exposure to dust from soybean and its products. *IntechOpen,* https://doi.org/10.5772/intechopen.92839 (open access)

Reports by HSE scientists and expert committees

Annual science review 2020. HSE, 2020. https://webarchive.nationalarchives.gov.uk/ukgwa/20250223141028mp_/https://www.hse.gov.uk/research/content/science-review-2020-new.pdf

Azkarate, I., Buttner, W., Barthelemy. H., Cirrone, D., Coldrick, S., Hooker, P., Hawksworth, S., Jeffrey, K., Jordan, T., Keller, J., Markert, F., Melideo, D., Moretto, P. and Tchouvelev, A. International Association for Hydrogen Safety 'Research Priorities Workshop', September 2018, Buxton, UK. HSE, 2020. (RR1159) https://www.hse.gov.uk/research/rrhtm/rr1159.htm

Ferreira, J., Riley, D. and Grimes, A. Visibility risk zone method to evaluate operator visibility for earth-moving machinery. HSE, 2020. (RR1156) https://www.hse.gov.uk/research/rrhtm/rr1156.htm

Ferreira, J., Riley, D. and Grimes, A. Application of a risk-based method to evaluate operator visibility from an hydraulic excavator. HSE, 2020. (RR1157) https://www.hse.gov.uk/research/rrhtm/rr1157.htm

Ferreira, J., Grimes, A. and Riley, D. Application of a risk-based method to evaluate operator visibility from a large rigid frame dumper truck. HSE, 2020. (RR1158) https://www.hse.gov.uk/research/rrhtm/rr1158.htm

Hewitt, S. and Brereton, P. Standard test codes for the declaration of vibration emission: a review of research carried out by the Health and Safety Executive. HSE, 2020. (RR1162) https://www.hse.gov.uk/research/rrhtm/rr1162.htm

Hewitt, S., Hunwin, G. and Mole, M. The effectiveness of British Standard BS EN ISO 28927-11:2011 concerning the vibration emission of stone hammers. HSE, 2020. (RR1163) https://www.hse.gov.uk/research/rrhtm/rr1163.htm

Hewitt, S., Hunwin, G. and Mole, M. The effectiveness of British Standard BS EN ISO 28927-10:2011 concerning the vibration emission of percussive drills, hammers and breakers. HSE, 2020. (RR1164) https://www.hse.gov.uk/research/rrhtm/rr1164.htm

Hobbs, J., Lees, P. and Hare, J. The response of large pressure vessels in the process industries to excess pressure: literature review. HSE, 2020. (RR1161) https://www.hse.gov.uk/research/rrhtm/rr1161.htm

Foresight report: the human impact of the changing nature of work. HSE, 2020. https://webarchive.nationalarchives.gov.uk/ukgwa/20190102143849/http://www.hse.gov.uk/horizons/assets/documents/foresight-report-2019.pdf

Health and Safety Executive and Public Health England (2020) Personal protective equipment selection for healthcare settings: COVID-19 evidence review to March 2020. HSE, 2020 (ER001)

HSE Workplace Health Expert Committee (WHEC) The adverse health effects of green waste recycling; bioaerosols and noise. HSE, 2020. https://webarchive.nationalarchives.gov.uk/ukgwa/20240605184759/https://www.hse.gov.uk/research/assets/docs/whec/whec-13.pdf

HSE Workplace Health Expert Committee (WHEC) Asbestos exposure as a criterion for low-dose CT (LDCT) screening for lung cancer. HSE, 2020. https://webarchive.nationalarchives.gov.uk/ukgwa/20240605184759/https://www.hse.gov.uk/research/assets/docs/whec/whec-14.pdf

HSE Workplace Health Expert Committee (WHEC) Hand-arm vibration syndrome (HAVS) - review of evidence on prognosis. HSE, 2020. https://webarchive.nationalarchives.gov.uk/ukgwa/20240605184759/https://www.hse.gov.uk/research/assets/docs/whec/whec-12.pdf

Reports prepared for HSE by other organisations

Pyta, V., Gupta, B., Stuttard, N., Kinnear, N. and Helman, S. Assisting the update of INDG382: vehicle technologies.TRL, 2020. https://trl.co.uk/publications/update-of-indg382-to-include-vehicle-safety-technologies

Published interviews with HSE scientists and analysts

Plackett, B. (2020) The British department trying to reset workers' attitudes toward health and safety. *ACS Chemical Health and Safety* 27(5) 261-262