

## Petro Chemistry: 2016 ANALYSIS OF HAZARD IDENTIFICATION AND HEALTH ASSESSMENT USING ULTRASONIC WELDING - T. N. Sureshkumar University of Caxias do Sul

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In this paper, we analysed the ultrasonic welding with element of an organization's activities, products or services that can interact with the environment. The environment aspects are air leakage, wire and terminal wastage and PVC wastage. The hazard identification and risk assessment in ultrasonic welding, the possible situations of hazard identification and risk assessments are bunching wires in hand, wire holder for crimping and generation of heat. Significance criteria for hazard and consequence are death, loss of any part of body, minor & major injury requires hospitalization/bed rest, injury & temporary treatment, injury that requires first aid at shop floor level only. Govindu and Babski-Reeves<sup>1</sup> observed that higher force, non-neutral postures, and presence of repetition and vibration on the job resulted in higher severity ratings and were included either in the occupational factors model, final model or both. This is accordance with previous findings where lifting (force requirements) in addition to bending and twisting (posture) was found to be more harmful. It was observed that the incidence of LBP in workers who performed heavy manual lifting was 8 times greater than workers with sedentary jobs. An explanation for how bending can be harmful is that while bending, muscles are no longer active and only the soft tissues play a role. These types of tasks generate loads on the spine that exceed failure loads. Fernandez and Marley<sup>2</sup> have reported an overview of psychophysical theory and major methodologies, which can be applied to occupational activities that involve physical stressors that could expose workers to risk of MSDs. Furthermore, we have summarized a series of experiments that were conducted utilizing psychophysical methods to examine the interplay between multiple MSD risk factors in the absence of well-defined biomechanical and/or physiological methods. The method was extended to examining upper-extremity tasks having been shown to be useful for whole body activities (i.e., lifting) as well as task elements (i.e., gripping, pinching, etc). Specifically, we documented psychophysically acceptable task frequencies given various posture, force and other conditions for several common tasks and task elements. Frequencies were examined because often posture and force cannot be easily controlled within the workplace. The results of these experiments collectively demonstrate that psychophysically acceptable frequencies are significantly and negatively affected by required posture, force and other conditions such as vibration. In addition, males could adjust to significantly higher frequencies than females under similar working conditions. Design limits were summarized for these conditions. Thus, we have advocated that the method of adjustment can provide the engineer or other safety professional with reasonable work limits. The basic tenet of this approach is that often engineering controls for potentially interacting risk factors may be impractical to implement. But psychophysical methods may be utilized to find a reasonable design solution. We are grateful to Ciriello, Snook, Ayoub, and

others for pioneering the use of long-established psychological principles to better understand physical stressors in modern work environments. Tanaka et al.<sup>3</sup> demonstrated seven types of motion pattern for a 4RE – linkage by straightforward calculations based on geometric considerations, and have also proposed certain motions of the repetitive assemblies to select the combinations of the obtained motions for a 4RE-linkage. To produce a highly symmetric structure with D4 symmetry. We have examined a variety of telescopic motions, which range from those based on the wellknown behaviour of square grids to novel mobility modes that are not yet publically available. This movable structure potentially has high stiffness with D8 symmetry if it can be made to transform to the bidirectional square grids (0 -or 45 -axialdirection) in response to changing external loads. Russo et al.<sup>4</sup> discussed noise exposure and hearing loss was assessed in different instrument groups of a professional ballet orchestra. Those instrument groups experiencing the highest levels of exposure also had the highest pure tone thresholds. Critically, we found that thresholds were not uniform across instrument groups. The greatest difference in thresholds was observed at test frequencies above 2000 Hz, peaking at 4000 Hz where the average difference between groups was as high as 15 dB. The differences could not be accounted for on the basis of age, years of playing, or years of playing professionally, and are thus most likely due to differences in occupational noise exposure. Nonetheless, measured losses for all instrument groups did not approach clinically significant levels. Fischer and Dickerson<sup>5</sup> consolidated and discussed the current state of research linking psychophysical and biomechanical approaches in ergonomic job (re-) design, with a focus on manual loads and shoulder exposures. Although slighted for its subjectivity and often misestimation of exposure. These arguments articulate the important role that psychophysics can play in shaping guidelines to prevent overexertion in the workplace. Alexander et al.<sup>6</sup> discussed analysis of workflow and communication paths is a necessary prerequisite to facilitate better design and implementation of clinical technologies. System design requires that we understand how people work before and after implementation of technologies; however, in many situations these activities are not carried through before clinical systems are put into place. Rarely these processes are evaluated post clinical system implementation. The design of embedded IT systems effects how clinical information is transferred between nursing staff and other patient care providers. Assessing how embedded IT systems affect the timing and placement of provider/patient interactions has important implications for clinical workflow, patient safety and quality measurement. Ethnographic methods including systematic observations of staff using various communication systems, including IT, provide a rich source of data that illuminates current clinical workflows, process change, and efficiencies that can improve care delivery. These types

of organizational assessments are novel to NHs who are implementing IT systems. These evaluations can lead to better metrics in care delivery and improved healthcare system administration. Malinowska-Borowska and Zielinski-in7 studied smaller coupling forces during cutting with larger, high-power chain saws. It must be noted, however, that the increasing weight of the chain saw increases the strain on the cardiovascular system. The heavier chain saw has greater power but it imposes a significantly greater cardiovascular strain than a lighter chain saw. Coupling forces exerted on high-power tools are smaller than forces exerted on small, universal saws. It seems that

from ergonomic point of view, the most desirable chain saw should possess both a low weight and a high power potential. Park and Han8 studied various previous studies on value and proposed a new concept for user value. This new concept of value distinguishes life value from user value, and describes detailed definitions and meanings of those values. In consequence, life value can be defined as desirable states of existence or modes of behaviour; and user value, as a part of life value, depends on the type of product or service. A certain product or service cannot meet all the universal value elements at a time.

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