ABSTRACT

Workplace accident at Shielded Metal Arc Welding (SMAW) activity at welding and manufacture workshop of PPNS ITS is potentially happened. Unpredictable job accident that frequently happened is caused by incidental character of the accidental itself. The most influenced factor which is happened in workplace accident is implementation of welding PPE. Influential aspect in PPE implementation are human factor, PPE specification, and PPE purpose convenience. The correct use of welding PPE will reduce the accident possibility especially when it is designed properly with anthropometri.

The research method is done by giving discomfort surveys of welding PPE questionnaire (face shields and gloves), then measuring the anthropometri head and hand of user, and after that doing the data normality test by using minitab software. The existing welding PPE data specifications and head and hand anthropometri data are used to evaluate the existing welding PPE by comparing the dimension. After that fixing up new design welding PPE utilize program use auto CAD. Then gives remedial alternative solution on welding PPE using and analyses with approaching Benefit Cost Ratio (B/C).

The result of the observation shows that evaluation toward the existing welding PPE by compares anthropometri user has deviation of 28-55% for dimension face shields and 15-44% for gloves dimension. Fixing up design welding PPE on the basis anthropometri has dimension as follows: face shields with dimensions of H1', H2, H4, H8 are 114.46 mm, 168.75 mm, 225.25 mm, 93.0 mm. Gloves with dimensions of T1, T2, T3, T4, T5, T6, T7, T8, T10, T12, T13 are 210.11 mm, 127.23 mm, 80.41 mm, 90.75 mm, 99.83 mm, 90.80 mm, 85.37 mm, 23.89 mm, 221.02 mm, 98.18 mm, 114.77 mm. The determining of feasibilities values of alternative design of welding PPE used Benefit Cost Ratio (B/C) method which is reasonable economy side to be carried out, that is remedial new welding PPE design suitably anthropometri user by has point b/c of 1.67.

Key words: Welding PPE, body dimension, anthropometri, B/C analyze