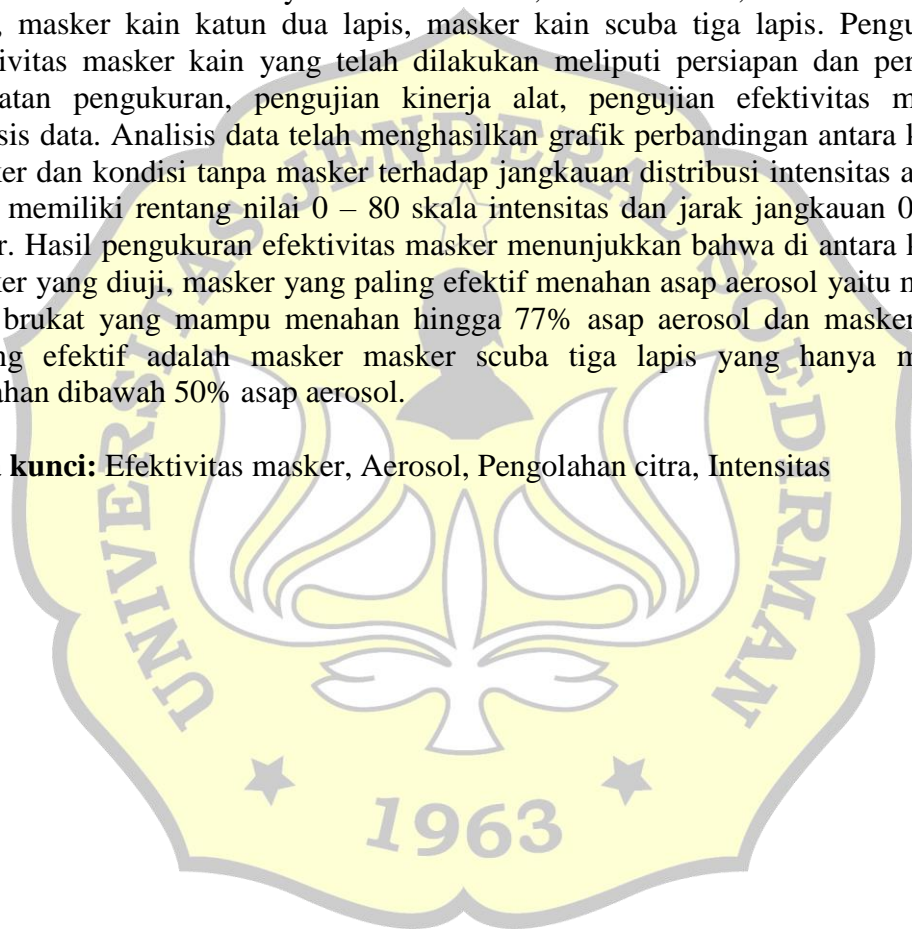


## ABSTRAK

Pengukuran efektivitas masker kain dalam penahanan penyebaran aerosol berdasarkan distribusi intensitas telah dilakukan. Penelitian ini bertujuan untuk membuat sistem pengukuran efektivitas masker kain dan menguji efektivitas masker produksi rumahan dalam menahan penyebaran aerosol. Data yang digunakan dalam penelitian ini adalah data skala distribusi intensitas pada kemampuan masker dalam penahanan penyebaran aerosol. Jumlah variasi yang dilakukan yaitu 3 variasi kecepatan udara yaitu 7,12 m/s, 4,42 m/s dan 1,84 m/s dan 5 variasi masker kain yaitu masker scuba, masker brukat, masker katun satu lapis, masker kain katun dua lapis, masker kain scuba tiga lapis. Pengukuran efektivitas masker kain yang telah dilakukan meliputi persiapan dan perakitan peralatan pengukuran, pengujian kinerja alat, pengujian efektivitas masker, analisis data. Analisis data telah menghasilkan grafik perbandingan antara kelima masker dan kondisi tanpa masker terhadap jangkauan distribusi intensitas aerosol yang memiliki rentang nilai 0 – 80 skala intensitas dan jarak jangkauan 0 – 1.2 meter. Hasil pengukuran efektivitas masker menunjukkan bahwa di antara kelima masker yang diuji, masker yang paling efektif menahan asap aerosol yaitu masker kain brukat yang mampu menahan hingga 77% asap aerosol dan masker yang kurang efektif adalah masker masker scuba tiga lapis yang hanya mampu menahan dibawah 50% asap aerosol.

**Kata kunci:** Efektivitas masker, Aerosol, Pengolahan citra, Intensitas



## ABSTRACT

Measurement of the effectiveness of cloth masks in containing the spread of aerosols based on the intensity distribution has been carried out. This study aims to create a system for measuring the effectiveness of cloth masks and to test the effectiveness of home-made masks in resisting the spread of aerosols. The data used in this research is intensity distribution scale data on the ability of masks to contain the spread of aerosols. The number of variations carried out were 3 variations of air speed, namely 7.12 m/s, 4.42 m/s and 1.84 m/s and 5 variations of cloth masks, namely scuba masks, brocade masks, single layer cotton masks, cotton cloth masks. two ply, three ply scuba cloth masks. Measuring the effectiveness of cloth masks that have been carried out includes the preparation and assembly of measurement equipment, testing the performance of tools, testing the effectiveness of masks, data analysis. Data analysis has produced a comparative graph between the five masks and the condition without a mask on the distribution range of aerosol intensity which has a value range of 0 – 80 on the intensity scale and a range of 0 – 1.2 meters. Data processing on the effectiveness of cloth masks in containing aerosol spread based on intensity distribution has been carried out using the Fiji ImageJ image processing software. The results of measuring the effectiveness of the masks show that among the five masks tested, the mask that is most effective at blocking aerosol smoke is a lace cloth mask which can withstand up to 77% of aerosol smoke and the least effective mask is a three-layer scuba mask which is only able to withstand below 50% aerosolized smoke.

**Keywords:** Mask effectiveness, Aerosol, Image processing, Intensity

