

**PENGEMBANGAN ALAT VAKUM KEMASAN HASIL
PERIKANAN DENGAN PEMANFAATAN LIMBAH MESIN PENDINGIN
SEBAGAI BAHAN BAKU**

Oleh :

I Made Adi Wirawan

Program Pendidikan Teknik Mesin

ABSTRAK

Penelitian ini bertujuan untuk mengetahui proses pengembangan alat vakum kemasan produk perikanan dengan memanfaatkan limbah mesin pendingin, mengetahui tingkat kelayakan alat vakum kemasan produk perikanan yang dikembangkan; dan mengetahui tingkat kepraktisan alat vakum kemasan produk perikanan berdasarkan penilaian kelompok kecil dan kelompok besar. Penelitian ini menggunakan metode penelitian dan pengembangan (*Research and Development*) dengan model pengembangan 4D yang terdiri atas tahap *Define, Design, Develop*, dan *Disseminate*. Produk yang dikembangkan berupa alat vakum kemasan perikanan dengan memanfaatkan kompresor limbah mesin pendingin sebagai pompa *vakuum* serta dilengkapi dengan komponen pendukung berupa filter, *check valve*, selang vakum, dan *sealer* pemanas. Data penelitian diperoleh melalui validasi ahli desain produk, validasi ahli manufaktur, serta uji kepraktisan pada kelompok kecil dan kelompok besar. Hasil penelitian menunjukkan bahwa alat vakum kemasan perikanan yang dikembangkan memperoleh tingkat kelayakan dengan persentase rata-rata 86,6% berdasarkan penilaian ahli desain produk dan 88% berdasarkan penilaian ahli manufaktur, sehingga termasuk dalam kategori sangat layak. Hasil uji kepraktisan memperoleh persentase rata-rata 88,3% pada kelompok kecil dan 89,2% pada kelompok besar, sehingga termasuk dalam kategori sangat praktis. Berdasarkan hasil tersebut, alat vakum kemasan perikanan dengan pemanfaatan limbah mesin pendingin dinyatakan sangat layak dan sangat praktis untuk digunakan sebagai alternatif teknologi tepat guna dan mendukung proses pengemasan produk perikanan.

Kata Kunci : pengemasan vakum, perikanan, limbah mesin pendingin, kompresor bekas, teknologi tepat guna.

**DEVELOPMENT OF A VAKUM PACKAGING DEVICE FOR FISHERY
PRODUCTS UTILIZING REFEREGRATION SYSTEM WASTE AS RAW
MATERIAL**

By

I Made Adi Wirawan

Study Program of Mechanical Engineering Education

ABSTRACT

This study aims to investigate the process of developing a vakum packaging machine for fishery products using waste from refrigeration units; to determine the feasibility of the developed vakum packaging machine for fishery products; and to assess the practicality of the vakum packaging machine for fishery products based on evaluations by small and large groups. This study employed a research and development (R&D) approach using the 4D development model, which consists of the Define, Design, Develop, and Disseminate stages. The product developed is a vakum packaging device for the fisheries industry that utilizes a waste compressor from a refrigeration unit as a vakum pump and is equipped with supporting components such as a filter, check valve, vakum hose, and a heated sealer. The research data were obtained through validation by product design experts, validation by manufacturing experts, and usability tests conducted on small and large groups. The results of the study indicate that the developed vacuum packaging device for seafood achieved a feasibility rating of 86.6% on average based on the assessment by product design experts and 88% based on the assessment by manufacturing experts, thereby falling into the “highly feasible” category. The practicality test results yielded an average percentage of 88.3% for the small group and 89.2% for the large group, placing them in the “highly practical” category. Based on these results, the vakum packaging device for fishery products that utilizes waste heat from refrigeration systems is deemed highly feasible and highly practical for use as an appropriate technology alternative to support the packaging process of fishery products.

Keywords : vakum packaging, fisheries, waste from refrigeration units, used compressors, appropriate technology.