

## ABSTRAK

Pipa distribusi air minum merupakan penyalur air minum dari unit produksi ke masyarakat pelanggan. Pada umumnya pipa distribusi air minum mengalami korosi akibat berinteraksi dengan lingkungan yang mengandung oksigen terlarut di dalam air yang di alirkan. Akibatnya pipa mengalami kerusakan berupa terbentuknya rongga dan kontur yang tidak rata, serta *scaling*. Kerusakan tersebut menyebabkan terjadinya penurunan kuantitas dan kualitas air yang di suplai. Penelitian ini di lakukan untuk menentukan laju korosi internal pipa yang mengalirkan larutan air dengan 10% Asam Hidro Klorida pada kecepatan 2,12 m/s.

Spesimen uji yang di gunakan adalah 3 pipa baja galvanis *schedule* 40 masing-masing berdiameter 1 *inchi* dan panjang 250 mm. Ketiga pipa tersebut di susun membentuk rangkaian U dengan posisi horizontal dan di hubungkan dengan elbow 90°. Pengujian korosi pipa yang di lakukan dengan variasi waktu 12, 18, 24, dan 30 jam mengalami korosi dengan laju masing-masing 534,44 mpy, 713,37 mpy, 1.069,97 mpy, dan 1.069,30 mpy.

Berdasarkan pemeriksaan secara visual terlihat permukaan internal pipa mengalami kerusakan berupa korosi merata dan sumuran.

**Kata Kunci** : Korosi Pipa, Asam Hidro Klorida, Laju Korosi, Pipa Baja Galvanis.

## ABSTRACT

Drinking water distribution pipe is the distribution of drinking water from the production unit to the customer community. In general, drinking water distribution pipes experience corrosion due to interacting with an environment that contains dissolved oxygen in the flowing water. As a result, the pipe is damaged in the form of cavities and uneven contours, and scaling. This damage causes a decrease in the quantity and quality of water supplied. This research was conducted to determine the internal corrosion rate of pipes that flow a water solution with 10% hydrochloric acid at a speed of 2.12 m / s.

Specimens test used were 3 Schedule 40 galvanized steel pipes, each 1 inch in diameter and long 250 mm. The three pipes are arranged to form a U series in a horizontal position and connected with a 90° elbow. Pipeline corrosion testing which was carried out with variations of time 12, 18, 24, and 30 hours experienced corrosion at a rate of 534.44 mpy, 713.37 mpy, 1,069.97 mpy, and 1,069.30 mpy, respectively.

Based on the visual inspection, it can be seen that the internal surface of the pipe is damaged in the form of evenly distributed corrosion and pitting.

**Keywords:** Pipe Corrosion, Hydrochloric Acid, Corrosion Rate, Galvanized Steel Pipe.