

**PUNGUT ULANG PERAK DARI LIMBAH FILM FOTOGRAFI  
MELALUI PROSES *LEACHING* DENGAN LARUTAN ASAM**

**SKRIPSI**

diajukan untuk memenuhi salah satu syarat memperoleh  
gelar Sarjana Sains pada Program Studi Kimia



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## ABSTRAK

Penelitian berbasis *review* jurnal ini membahas tentang penggunaan larutan asam pada pungut ulang perak dari limbah film fotografi. Tujuan penelitian ini adalah mengetahui larutan asam terbaik untuk pungut ulang perak dari limbah film fotografi melalui proses *leaching*. Data-data yang didapatkan kemudian dikumpulkan dan diolah menjadi data sekunder. Hasil *review* jurnal menyatakan bahwa variasi konsentrasi, suhu, dan waktu *leaching* pada semua larutan asam mampu meningkatkan pungut ulang perak. Asam oksalat mampu menghasilkan pungut ulang perak yang tinggi yaitu 91,82% dengan konsentrasi 10% (b/v), waktu *leaching* 20 menit dan suhu *leaching* 100°C tanpa menghasilkan produk samping yang berbahaya. Pada kajian evaluasi ekonomi, grafik CNPV/Investasi terhadap waktu (tahun) menunjukkan bahwa pada pungut ulang perak dari limbah film fotografi melalui proses *leaching* dengan asam oksalat yang dilakukan dalam skala industri mampu mencapai titik periode pengembalian modal (PBP) dalam jangka waktu 3 tahun.

Kata kunci: Pungut Ulang, Perak, Limbah Film Fotografi, *Leaching*

## **ABSTRACT**

*This journal review-based research discusses the use of acid solutions in silver recovery from photographic film waste. The purpose of this study was to determine the best acid solution for recovering silver from waste photographic film through a leaching process. The data obtained are then collected and processed into secondary data. The results of the journal review stated that variation the concentration, temperature, and leaching time of all acidic solutions was able to increase silver recovery. Oxalic acid was able to produce high silver recoveries of 91.82% with a concentration of 10% (w / v), a leaching time of 20 minutes and a leaching temperature of 100 ° C without producing harmful side products. In an economic evaluation study, the CNPV / Investment against time (years) graph shows that the recovery of silver from photographic film waste through a leaching process with oxalic acid carried out on an industrial scale is able to reach a payback period (PBP) point within a period of 3 years.*

*Keywords: Recovery, Silver, Photographic Film Waste, Leaching*

## DAFTAR ISI

LEMBAR PENGESAHAN .....	i
LEMBAR PERNYATAAN .....	<b>Error! Bookmark not defined.</b>
KATA PENGANTAR.....	<b>Error! Bookmark not defined.</b>
UCAPAN TERIMAKASIH.....	<b>Error! Bookmark not defined.</b>
ABSTRAK .....	iv
ABSTRACT .....	v
DAFTAR ISI.....	vi
DAFTAR TABEL .....	viii
DAFTAR GAMBAR.....	ix
BAB I PENDAHULUAN.....	<b>Error! Bookmark not defined.</b>
1.1. Latar Belakang Penelitian .....	<b>Error! Bookmark not defined.</b>
1.2. Rumusan Masalah .....	<b>Error! Bookmark not defined.</b>
1.3. Tujuan Penelitian .....	<b>Error! Bookmark not defined.</b>
1.4. Manfaat Penelitian .....	<b>Error! Bookmark not defined.</b>
1.5. Struktur Organisasi Skripsi .....	<b>Error! Bookmark not defined.</b>
BAB II TINJAUAN PUSTAKA.....	<b>Error! Bookmark not defined.</b>
2.1. Perak .....	<b>Error! Bookmark not defined.</b>
2.2. Film Fotografi .....	<b>Error! Bookmark not defined.</b>
2.3. Proses Pengolahan Film Fotografi Secara Manual .....	<b>Error! Bookmark not defined.</b>
<b>defined.</b>	
2.4. Pengelupasan ( <i>Leaching</i> ) .....	<b>Error! Bookmark not defined.</b>
BAB III METODE PENELITIAN .....	<b>Error! Bookmark not defined.</b>
3.1. Deskripsi Penelitian .....	<b>Error! Bookmark not defined.</b>
3.2. Tahapan Penelitian.....	<b>Error! Bookmark not defined.</b>

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3.2.1. Penelusuran Jurnal .....	<b>Error! Bookmark not defined.</b>
3.2.2. Seleksi Jurnal .....	<b>Error! Bookmark not defined.</b>
3.2.3. Pengumpulan Data .....	<b>Error! Bookmark not defined.</b>
3.2.4. Analisis Data .....	<b>Error! Bookmark not defined.</b>
3.2.4. Menarik kesimpulan.....	<b>Error! Bookmark not defined.</b>
3.3. Bagan Alir .....	<b>Error! Bookmark not defined.</b>
3.4. Abstraksi Review Jurnal .....	<b>Error! Bookmark not defined.</b>
3.4.1. Silver Recovery from Waste Radiographic Film Using Oxalic Acid	<b>Error! Bookmark not defined.</b>
<b>Bookmark not defined.</b>	
3.4.2. Radiographic Film Waste Management in Thailand and Cleaner Technology for Silver Leaching .....	<b>Error! Bookmark not defined.</b>
3.4.2. Recovery of Silver Waste Radiographic Films by Chemical Leaching	
<b>Error! Bookmark not defined.</b>	
3.5. Metode Evaluasi Ekonomi .....	<b>Error! Bookmark not defined.</b>
<b>BAB IV HASIL DAN PEMBAHASAN .....</b>	<b>Error! Bookmark not defined.</b>
4.1. Variasi Konsentrasi Larutan Asam Terhadap Pungut Ulang Perak .....	<b>Error! Bookmark not defined.</b>
<b>Bookmark not defined.</b>	
4.2. Variasi Suhu <i>Leaching</i> Terhadap Pungut Ulang Perak.	<b>Error! Bookmark not defined.</b>
<b>defined.</b>	
4.3. Variasi Waktu <i>Leaching</i> Terhadap Pungut Ulang Perak .....	<b>Error! Bookmark not defined.</b>
<b>not defined.</b>	
4.4. Kajian Evaluasi Ekonomi Larutan Asam Terbaik .....	<b>Error! Bookmark not defined.</b>
<b>defined.</b>	
<b>BAB V SIMPULAN DAN SARAN .....</b>	<b>Error! Bookmark not defined.9</b>
5.1. Simpulan .....	<b>Error! Bookmark not defined.9</b>
5.2. Saran.....	<b>Error! Bookmark not defined.9</b>
<b>DAFTAR PUSTAKA .....</b>	<b>31</b>

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## DAFTAR TABEL

**Tabel 3.1.** Daftar Jurnal Hasil Penelusuran ..... **Error! Bookmark not defined.**

**Tabel 3.2.** Daftar Jurnal Hasil Seleksi ..... **Error! Bookmark not defined.**

**Tabel 4.1.** Variasi konsentrasi asam oksalat pada pungut ulang perak.....

**Error! Bookmark not defined.**

**Tabel 4.2.** Variasi suhu leaching pada pungut ulang perak menggunakan asam oksalat

**Error! Bookmark not defined.**

**Tabel 4.3.** Variasi waktu leaching pada pungut ulang perak menggunakan asam oksalat

**Error! Bookmark not defined.**

**Tabel 4.4.** Data hasil *review* jurnal ..... **Error! Bookmark not defined.**

## DAFTAR GAMBAR

<b>Gambar 2.1.</b> Struktur Penyusun Film Fotografi .....	5
<b>Gambar 2.2.</b> Gelatin yang mengandung kristal perak halida .....	5
<b>Gambar 2.3.</b> Struktur Asam Oksalat.....	8
<b>Gambar 2.4.</b> Stuktur Asam Malonat.....	9
<b>Gambar 2.5.</b> Sturktur Asam Nitrat.....	9
<b>Gambar 2.6.</b> Sturktur Asam Asetat.....	10
<b>Gambar 3.1.</b> Bagan Alir Penelitian.....	17
<b>Gambar 4.1.</b> Variasi konsentrasi asam malonat dan asam asetat pada pungut ulang perak.....	
<b>Error! Bookmark not defined.</b>	
<b>Gambar 4.2.</b> Variasi konsentrasi asam nitrat pada pungut ulang perak	
<b>Error! Bookmark not defined.</b>	
<b>Gambar 4.3.</b> Pengaruh Konsentrasi Larutan Asam Terhadap Pungut Ulang Perak .....	<b>Er</b>
<b>ror! Bookmark not defined.</b>	
<b>Gambar 4.4.</b> Variasi suhu leaching pada pungut ulang perak menggunakan asam malonat dan asam asetat.....	<b>Error! Bookmark not defined.</b>
<b>Gambar 4.5.</b> Variasi suhu leaching pada Pungut Ulang Perak..	<b>Error! Bookmark not defined.</b>
<b>Gambar 4.6.</b> Variasi waktu leaching pada pungut ulang perak menggunakan larutan asam nitrat .....	<b>Error! Bookmark not defined.</b>
<b>Gambar 4. 7.</b> Pengaruh Waktu Leaching Terhadap Pungut Ulang Perak ....	<b>Error! Bookmark not defined.</b>
<b>Gambar 4. 8.</b> Proses Pungut Ulang Perak dari Limbah Film Fotografi melalui Proses Leaching dengan Asam Oksalat .....	29
<b>Gambar 4. 9.</b> Kondisi Ideal untuk CNPV/Investasi Terhadap Waktu.....	30

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