Benchmark on literature data processes for precious metals recovery from spent auto-catalyst, waste printed circuit boards and photovoltaic panel

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The current paper has as main core to presents a literature overview of the processes developed for precious metals recovery from spent auto-catalyst (Pd, Pt and Rh), waste printed circuit boards (Au, Ag and Pd) and photovoltaic panel (Ag). The hydrometallurgical processes, which are generally more easily to handle than pyrometallurgical ones have been put more in evidence within this study. There have been chosen 6 types of hydrometallurgical processes with same reactive of solubilization but different kinds of reagents for precious metal recovery from solution or different leaching agents with different methods of recovery from solution. The final material balance of the processes was achieved by the processes simulation with Super Pro Designer and HSC Chemistry software. In this way, the economic feasibility was realized and put in balance between all the analyzed processes.

Key words: precious metals; spent auto-catalyst; waste printed circuit boards; spent photovoltaic panels; hydrometallurgy; recovery.

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