

It is a method for processing of expired solid rocket propellant containing ammonium perchlorate, powdered aluminium, a rubber-based binder and remaining minority admixtures for the purpose of recycling ammonium perchlorate, comprising the following steps: a) wet mechanical-physical-chemical disintegration of the said solid propellant while a suspension of solid substances in a solution is produced; b) leaching of the stirred said suspension at an elevated temperature in water and/or unsaturated ammonium perchlorate solution containing added inert material based on porous carbon, diatomaceous earth and/or a polymer; c) de-agglomeration and prevention of re-agglomeration of solid substances in the suspension with the use of the said inert material during the leaching process; d) separation of the ammonium perchlorate solution from the solid substances; e) refining of the separated ammonium perchlorate solution from step d) with the said inert material, except the polymer-based material, at an elevated temperature; f) separation of the inert material from the ammonium perchlorate solution optionally followed by concentrating the solution; g) crystallization and optional re-crystallization of the recycled ammonium perchlorate.