

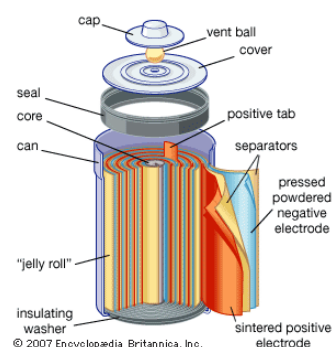
INPUT

Battery Specification

Name:	Nickel Cadmium (NiCd) Battery
Category:	rechargeable battery
Nominal Voltage:	1,2 V
Energy Density:	40-60 Wh/kg
Anode:	cadmium
Cathode:	nickel(III) oxide-hydroxide (NiO(OH))
Electrolyte:	potassium hydroxide (KOH)
Discharge Reaction:	$2\text{NiO(OH)} + \text{Cd} + 2\text{H}_2\text{O} \rightarrow 2\text{Ni(OH)}_2 + \text{Cd(OH)}_2$ (opposite direction for charging)
Structure:	spiral

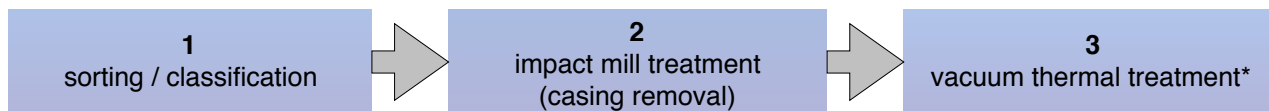


NiCd Battery Sample



Structure

TREATMENT



OUTPUT

Component	Input wt [%] (average)	Output wt [%]* (average)	Output Form	Recycling Path	Recycling Efficiency [%]
Steel & Nickel	63,5 %	63,5 %	Ni-Fe scrap	steel works	63,5 %
Cadmium	14,8 %	14,8 %	Cd metal ingot	cadmium works	14,8 %
		0,003 %	Ni-Fe scrap trace elements	no	0 %
Co & Cu	1,3 %	1,3 %	Ni-Fe scrap trace elements	no	1,3 %
Other Metals (K, Li, etc.)	3 %	3 %	Ni-Fe scrap trace elements	no	0 %
Others (Plastics, C, O, H, etc.)	17,7 %	1 %	carbon	reducing agent	0 %
		0 %	off-gas	no	0 %

Total: 100,3 % 83,6 %

RE: 79,6 %**

*: B. Friedrich, M. Vest, Production Audit Report: Validation of the Battery Recycling Efficiency for NiCd Battery System, MIMI Tech UG, Aachen, 2012

** : Calculation according to EU/66/2006 and EU/493/2012