

Index

PREFACE p. 5

1. WHAT E-CAT IS

What are low-energy nuclear reactions, p. 10 – Twenty years of research on cold fusion, p. 12 – The disruptive innovations brought by Andrea Rossi, p. 15 – The findings of a “skeptic” to the presentation of E-Cat, p. 18.

2. HOW MUCH ENERGY IT PRODUCES

The first methods used to calculate the excess energy, p. 24 – The early experimental results obtained, p. 26 – The public demonstrations of the E-Cat, p. 30 – Uncertainties related to the amplification factor, p. 34.

3. HOW IS AN E-CAT MADE?

The architecture of the commercial version, p. 41 – What are the internal components of the E-Cat, p. 43 – How the external part of the E-Cat is made, p. 46 – A reconstruction of the heart of the reactor, p. 48.

4. DISCOVERING THE SETUP

The source of hydrogen and its pressure, p. 54 – The ignition temperature of the nuclear reaction, p. 57 – Nickel powder: the quantity and the ideal size, p. 61 – The isotopic composition and metal treatment, p. 64 – A simple list of what you need, p. 67.

5. THE SECRET CATALYST

The importance of an “additive” in the E-Cat of Rossi-Focardi, p. 71 – What is the function of the catalyst in a reaction?, p. 74 – The possibility that it may not be a compound, p. 77 – Some valuable and... totally unexpected clues, p. 80 – What are the conclusions that can be drawn?, p. 84.

6. PRODUCTS OF THE REACTIONS

The substances observed in the post-reaction powder, p. 91 – The issue suddenly become more complicated, p. 94 – Involuntary assistance for all the skeptics, p. 96 – Looking for a plausible explanation, p. 99.

7. THE CONTROLS ON RADIOACTIVITY

Radioactivity levels outside the machine, p. 105 – The absence of neutrons in the Ni-H reactions, p. 107 – Temporary emissions in the reaction chamber, p. 108 – Shielding from low-energy gamma rays, p. 111.

8. NUCLEAR NATURE OF THE REACTIONS

A self-sustaining exothermic reaction, p. 116 – The main nuclear “signature” of the phenomenon, p. 118 – Different energy levels in chemical and nuclear reactions, p.121 - A theoretical estimate made by orders of magnitude, p.124.

9. TOWARDS A POSSIBLE THEORY

Overcoming the Coulomb barrier, p. 128 – A look at the main types of possible reactions, p. 131 – A theoretical prediction later proved wrong, p. 135 – Which theories on LENR are applicable to an E-cat?, 138.

10. UPDATE: RECENT DEVELOPMENTS

Towards the unveiling of the secret catalyzer, p. 142 – When all the pieces fit in the puzzle, p. 145 – Secrets of E-Cat: another brick in the wall, p. 148 – A detailed recipe for a revolutionary technology, p. 152 – A New Physics and the quest for a Nobel Prize, p. 155.

ACKNOWLEDGMENTS p. 160

THE AUTHOR p. 162