

Report on field of the invention

[Technology](#), [Innovation](#)



Summary: Examination of a biotechnology patent

Theoretically, thermal cycling refers to a process of temperature regulation scheme that is used to strengthen variety of materials or lengthen their durability. Thermal cycling apparatus and method refers to the equipment and technique used to carry out thermo cycling processes. Improved thermal cycling apparatus and relates to the modern advanced inventions of equipments and methods of carrying thermoregulation processes and minimizing related movement of fluids from two zones with two different temperatures to control chemical reactions.

Background of the invention

Temperature is one of the main factors that have been found to affect: to promote or slowdown chemical reactions. There are various reaction processes that rely on the existence of multiple temperatures in the thermo cycling systems. For example, in biotechnology, thermo cycling has made it possible for scientists to study DNA at molecular levels.

Object of the invention

Like any other undertaking, researchers and experts in thermo cycling and biotechnology has an objective of improving from the present innovations. It is an abject motive, of the present states of biotechnology, in using thermo cycling knowledge to advances to provide improved thermal cycling apparatus or equipment and techniques for influencing the chemical reactions that required multiple levels of temperatures. One common seatback with this technique is that some of the apparatus to be used may come up with its own challenges and disadvantages.

Disclosure of the invention

One major feature of the innovation in thermo regulation system is that it must always have another set of equipment for reactions execution of a thermo cycle promotion of any chemical reactions in the reaction fluid. There are some conditions which a typical complete improved thermo cycling apparatus must fulfill in order to function effectively. The apparatus of this set of equipment must have a reaction zones where it allows the fluids to move to and from auxiliary zone and the main reaction zone. It has to have a minimum of one thermal transfer between the two zones. There must also be a mechanism for controlling the two different temperatures in the auxiliary and reaction zones. Every other operation of the system on the thermo cycling apparatus should be regulated and controllable. The temperature controls mechanisms and that of the operations' controllability should allow for the synchronization of fluid transfer in order to sustain continuance of the chemical reaction.

Applications

Knowledge and inventions in biotechnology such as thermo cycling has been applied in many contexts. Biotechnology techniques have been applied for different purposes and to undertake specific functions. One such application is the uses of biotechnology knowledge in thermo cycling to making various copies of strands of DNA from Polymerase Chain Reactions. This is a technique in molecular biology commonly used in genetics, in conducting paternity, forensic sciences and even hereditary phenomenon.

First developed by Kary Mullis, the thermo recycling is now widely and extensively used in natural genetics and in diagnosing hereditary diseases.

This technique of using the ability to read and interpret the multiplicity of the strands in the DNA has been used in singling out the geneses with defects that causes hereditary diseases. In a similar way, the other infectious maladies have been diagnosed using the PCRs.

Polymerase reaction processes are sensitive to changes in temperatures. In the processes, there is simultaneous heating and cooling to melt and move the DNA molecule repeatedly. All the enzymatic reactions normally take place in thermo cycling system.

References:

Ross, B., 1997, Improved Thermo Cycling apparatus and method, Published with International Search report.