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**APPARATUS FOR MINIMIZING
EFFLUENT DISCHARGES AND
RECOVERING CHEMICALS IN A
PULP MILL**

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Apparatus for a pulp and paper mill, and methods of acting on liquid effluents produced in the mill, which minimizes the discharge of polluting gaseous and liquid effluents to the environment. Liquid effluents from the bleach plant are concentrated (e.g. evaporated), incinerated (e.g. gasified), leached, crystallized (e.g. freeze crystallized) then washed, and then fed to the plant chemical recovery loop. White liquor produced from the recovery boiler melt is fully oxidized and used in place of caustic in the bleach plant. Essentially all sulfuric acid, sulfur dioxide, caustic, and chlorine dioxide necessary for the pulp mill is produced from mill liquid effluents and gas waste streams, on site at the pulp mill. Typical bleaching sequences that can be used are DEopDnD, or AZEo PZP.

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**METHOD FOR USE OF
LIQUID/VAPOR AMMONIA
ABSORPTION SYSTEMS IN
UNITARY HVAC SYSTEMS**

Rockenfeller Uwe; Kirol Lance D Boulder City, NV, UNITED STATES assigned to Rocky Research

A liquid vapor absorption system comprises: one or more absorbers, one or more generators, and a fluid loop for directing refrigerant absorption fluid between the absorbers and generators, heat exchangers for selectively functioning as an evaporator or a condenser and cooperating with an indoor coil for recovering thermal energy, a

reservoir for condensed refrigerant, a phase-change thermosyphon loop for directing condensed refrigerant from the reservoir to the heat exchange section of an absorber for removing heat of absorption, and a reversing valve means for selectively directing gaseous refrigerant to the heat exchangers functioning as a condenser, and for simultaneously directing gaseous refrigerant from the heat exchangers functioning as an evaporator to the absorber.

5549155

**INTEGRATED CIRCUIT COOLING
APPARATUS**

Meyer George; Toth Jerome; Longsderff Richard W Conestoga, PA, UNITED STATES assigned to Thermacore Inc

The apparatus is a cooling device for an integrated circuit chip which includes a heat conductive pad for contact with the top surface of the chip and for attachment to a heat pipe to dispose of the heat. One surface of the pad is flat and contacts the circuit chip while the opposite surface of the pad is attached to a simple cylindrical heat pipe. The pad includes extensions from its sides to which a holding fixture applies force so that the pad is held tightly against the chip. The holding fixture is held on the mounting board by screws while the top of the pad which is attached to the heat pipe protrudes through a hole in the holding fixture. A finned heat exchanger is attached to an end of the heat pipe remote from the conductive pad.

5551254

**DOUBLE EFFECT ABSORPTION
REFRIGERATING MACHINE**

Inoue Naoyuk Kanagawa ken, JAPAN assigned to Ebara Corporation

A double effect absorption refrigerating machine wherein a refrigerant vapor generated at a high temperature generator GH is used as a heat source of a low temperature generator GL, comprising a liquid level detecting heat exchanger XC for detecting a level of liquid at an outlet of a high