

**A**

absolute humidity 43  
 absolute saturation humidity 43  
 adiabatic compression 29  
 air-source heat pump chiller 104  
 antifreeze liquid circulating system 127  
 aquifer thermal storage 21, 25

**B**

base load discharge 82  
 basis temperature difference 73  
 bell mouth 67  
 belt-like diffuser 70  
 biochemical oxygen demand 139  
 BOD 139  
 bridging 136  
 brine (antifreeze) 139  
 brine expansion tank 144  
 bugle tube 67

**C**

capacity of the heat source machine 84  
 capacity of thermal storage tank 86  
 cascading use of heat 10  
 cavitation 114  
 centrifugal pump 110  
 chemical heat storage 19  
 chilled and hot water tank 57  
 chilled water supply system to load 94  
 chilled water tank 57  
 closed type cooling tower 107  
 coefficient of performance 34  
 cogeneration system 12  
 combined heat and power supply

system 12  
 communicating tube 59  
 complete mix region 81  
 compressed air 20  
 condenser 32  
 conduction 15  
 control of condenser water temperature  
   control valve 94  
 convection 15  
 cooling tower 107  
 COP 34  
 COP 3 4  
 COP 6 4  
 counter flow 107  
 countermeasures for "water dropping"  
   114  
 cross flow 107

**D**

DB (double bundle) 47  
 DB (dry bulb) 38  
 depth of the complete mix region 81  
 difference in operating temperature of air-  
   handling unit coil 77  
 direct expansion system 127  
 direct heat exchange method 127  
 direct supply method 95  
 disc-like 70  
 dissolved oxygen 55  
 distributor 69  
 DO 55  
 double bundle heat pump 47  
 dry bulb 38  
 dry-bulb temperature (DB) 43  
 dynamic 128

**E**

effective bulk ratio of each tank 72  
 energy conversion technology 17  
 energy storage technology 17  
 energy transportation technology 17  
 enthalpy 34  
 ethylene glycol 139  
 evaporator 31  
 expansion valve 32

**F**

flywheel 20  
 four-way valve 32  
 frost heaving 143

**G**

gland packing 114  
 global warming 1  
 global warming potential 1  
 greenhouse gas 1  
 GWP 1, 3

**H**

harvest type 128  
 heat discharge limit temperature 80  
 heat exchanger 117  
 heat exchanger method 95  
 heat loss 73  
 heat pump 29, 31  
 heat recovery heat pump 47  
 heat recovery turbo chiller 100  
 heat sink 32  
 heat source 32  
 heat source machine 99  
 heat source machine-related control 92  
 heat storage limit temperature 80  
 heat transfer 15  
 heating tower heat pump 106  
 heat-storage-type heat pump 52  
 hot water storage tank 20  
 hot water tank 57

**I**

ice packing factor 26  
 ice thermal-based multi air conditioning unit 131  
 ice-making heat exchanger 149  
 ice-separation (dynamic) 127  
 immersion capsule type 128  
 immersion/drop heat exchanger type 128  
 indirect cooling method 127  
 induction unit 126  
 inner melting 128  
 inner melting type ice thermal storage system 151  
 installed in a zigzag manner 63  
 interior zone 47  
 IPF 26

**K**

Kyoto Protocol 4

**L**

large temperature difference air conditioning system 125  
 latent heat 25  
 latent heat storage 19, 25  
 liquid ice 128  
 liquid ice type 128  
 long-term thermal storage 21

**M**

mechanical seal 114  
 Mollier diagram 34  
 multi-connected mixing tank 59  
 multi-connected mixing thermal storage tank 59  
 multi-connected temperature-stratified tank 68

**N**

NaS battery 19

**O**

- on-site construction type 132
- open type cooling tower 107
- outer melting type 128
- outer melting type ice thermal storage system 148

**P**

- package ice thermal storage unit 132
- panel type ice thermal storage tank 145
- partial load 82
- PCM 26
- peak cut heat discharge 82
- perimeter zone 47
- phase change 26
- phase change material 26
- pit for collecting water 67
- plate heat exchanger 117
- practical COP 36
- propylene glycol 139
- pump 110

**R**

- radiation 15
- refrigerant 31
- refrigeration cycle 31
- relative humidity (RH) 43

**S**

- screw chiller 100
- secondary battery 19
- selection of pump 110
- sensible heat 25
- sensible heat storage 19, 20
- sensible heat storage, latent heat storage, and chemical heat storage 20
- shaft furnace at iron works 21
- shaft sealing device 114
- shell and tube heat exchanger 117
- single/parallel temperature-stratified thermal storage tanks 69
- single/parallel temperature-stratified type 68

- soft rime 128
- solid thermal storage 24
- static 127
- static method 128
- steam accumulator 20
- superconducting coil 19
- supercooling-based type 128
- superstructure thermal storage 21

**T**

- temperature profile 79
- temperature-stratification 61
- temperature-stratified tank 59
- temperature-stratified thermal storage tank 61
- the second law of thermodynamics 10
- the Sixth Conference of Parties to the UN Framework Convention on Climate Change 4
- theoretical heat pump COP 36
- thermal storage material 21
- thermal storage tank efficiency 73
- thermal storage tank efficiency defined by Nakahara, et al. 72
- turbo chiller 100

**U**

- underground thermal storage 25
- unit type 132
- US refrigeration ton 34
- USRt 34

**W**

- water pumping 19
- water thermal storage tank 23
- water-source heat pump 105
- WB 39
- wet-bulb 39
- wet-bulb temperature (WB) 43