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C *****
C FUNCTION RHOF(TBA)
C *****
  RHOF=-4276.+53.24*TBA-.1953*TBA**2+3.097E-4*TBA**3-1.824E-7*TBA**4
  RETURN
  END
C *****
C FUNCTION RHOG(TBA,PB)
C *****
C UNIT = KG/M**3
  RHOG = .576+PB*1.E6*(2.483E-5-1.41E-12*PB*1.E6)+(PB*1.E6/TBA)*(-2.
1616E-2+1.016E-9*PB*1.E6+7.589/TBA)
  RETURN
  END
C *****
C FUNCTION CP(TBA)
C *****
C UNIT = J/KG K
  CP = 4028.+128.8/(1.-TBA/650.)+4.674/((1.-TBA/650.)**2)
  RETURN
  END
C *****
C FUNCTION TKCOOL(TBA,P)
C *****
C UNIT = W/M K
  TKCOOL = .686+7.3E-10*P*1.E6-5.87E-6*(TBA-415.)**2
  RETURN
  END
C *****
C FUNCTION UF(TBA)
C *****
C UNIT = KG/M SEC
  UF = 25.3/(-8.58E4+91.*TBA+TBA**2)
  RETURN
  END
C *****
C FUNCTION UG(TBA)
C *****
  UG = 11.4/(1.37E6-844.*TBA-TBA**2)
  RETURN
  END
C *****
C FUNCTION ENTHAF(PB)
C *****
C UNIT = KJ/KG
  PB = PB*1.4507772E2
  IF(PB.LT.400..OR.PB.GT.2500.) GO TO 7997
  ENTHAF = (3.19328213E2+3.04661960E-1*PB-9.85841140E-5*PB**2+1.7101
11786E-8*PB**3)*2.325837743
  GO TO 7999
7997 WRITE(6,7998)
7998 FORMAT(3X,'THE PRESSURE IS OUT OF THE RANGE OF VALIDITY OF THE SAT
URATED LIQUID ENTHALPY CORRELATION')
7999 PB = PB*6.8928571E-3
  RETURN
  END
C *****
C FUNCTION ENTHAG(PV)
C *****
  PV = PV*1.4507772E2
  IF(PV.LT.450..OR.PV.GT.2300.) GO TO 8997
  ENTHAG = (1.20742535E3+7.84021105E-3*PV-2.39800695E-5*PV**2+1.0924
16887E-9*PV**3)*2.32587743
  GO TO 8999
8997 WRITE(6,8998)
8998 FORMAT(3X,'THE PRESSURE IS OUT OF THE RANGE OF VALIDITY OF THE SAT
URATED VAPOR ENTHALPY CORRELATION')
8999 PV = PV*6.8928571E-3
  RETURN
  END

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