

## EXAMPLE 1-14 Fire Hazard Prevention of Oil Leakage on Hot Engine Surface

### Modelica code

```
model Example_1_14 "Fire Hazard Prevention of Oil Leakage on Hot Engine Surface"
  import Modelica.Constants;
  import Modelica.SIunits;
  import Modelica.SIunits.Conversions;
  import Modelica.SIunits.Conversions.NonSIunits;

  parameter SIunits.HeatFlux q_0(min=0) = 5000 "Flux (W/m^2)";
  parameter Real epsilon(min=0,max=1) = 0.3 "Emiss. (-)";
  parameter SIunits.CoefficientOfHeatTransfer h(min=0) = 15 " (W/ (m^2 K)) ";
  parameter NonSIunits.Temperature_degC T_surr(min=-273.15) = 40 "Surr. T (C)";

  output NonSIunits.Temperature_degC T_0 "Surface temperature (C)";
  output NonSIunits.Temperature_degC T_0_K "Surface temperature (C)";
  output SIunits.Temperature T_surr_K "Surrounding temperature (K)";

equation
  T_0_K = Conversions.from_degC(T_0);
  T_surr_K = Conversions.from_degC(T_surr);
  q_0 = h*(T_0 - T_surr) + epsilon*Constants.sigma*(T_0_K^4 - T_surr_K^4);

end Example_1_14;
```