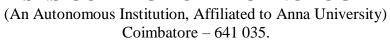


## SNS COLLEGE OF TECHNOLOGY





## UNIT V PRESERVATION BY COOLING

Topic: Frezeeing Time Calculations

The more general from of Plank's equation for calculation freezing time is:

 $L \quad PD \quad RD^2$  Freezing time = -----{-------}  $V \quad D \quad f \, k$ 

Where

L = Heat to be extracted between the initial freezing point and final temperature (kcal/kg).

V = Specific volume of fish (m<sup>3</sup>/kg)

D = Temperature difference between the initial freezing point of the

fish and the refrigerating medium (°C)

D = Thickness of product in direction or prevailing heat transfer (m)

f = Surface coefficient of heat transfer (including effect of

packaging) (kcal/h.m °C)

k = Thermal conductivity of frozen fish (kcal/h m°C)

P and R= Constants which depend on shape

Values for shape constants P and R

Shape	P	R
Sphere	0.167	0.042
Infinite Cylinder	0.167	0.042
Infinite Slab	0.500	0.250