The Thomas et al code selects a value for the timestep using the following equations.

$$
\begin{aligned}
\Delta t_n &= dk \min\left[\frac{Y_n(i)}{\dot{Y}(i)} dk_{fac}, \frac{T_n}{\frac{dT}{dt}}\right] \\
dk_{fac} &= \left(1 + \left(-\frac{\log Y_n(i)}{dt_{fac}}\right)^2\right) \\
dt_{fac} &= -\frac{\log Y_{min}}{\frac{dk_{max}}{dk} - 1}
\end{aligned}
$$

where $dk = 0.1$ and $dk_{max} = 0.6$. The dk_{fac} factor is placed there so that the code won't select an isotope (i) whose $Y(i)$ is close to Y_{min}. Figure (4a) illustrates that Δt_n is determined from the $dk_{fac}Y(i)/\dot{Y}(i)$ ratio for most of the runs (when the graphs are not linear). As a result $X_{^4He}$ varies considerably with Y_{min}, as shown in Figure (4b).