# Nuclear burning stages

**(e.g., 20 solar mass star)**

| Fuel | Main Product | Secondary Product | T ($10^9$ K) | Time (yr) | Main Reaction |
|---|---|---|---|---|---|
| H | He | $^{14}$N | 0.02 | $10^7$ | $4\,H \xrightarrow{CNO} {}^4He$ |
| He | O, C | $^{18}$O, $^{22}$Ne s-process | 0.2 | $10^6$ | $3\,He^4 \rightarrow {}^{12}C$; $^{12}C \rightarrow {}^{16}O$ |
| C | Ne, Mg | Na | 0.8 | $10^3$ | $^{12}C + {}^{12}C$ |
| Ne | O, Mg | Al, P | 1.5 | 3 | $^{20}Ne \rightarrow {}^{16}O$; $^{20}Ne \rightarrow {}^{24}Mg$ |
| O | Si, S | Cl, Ar, K, Ca | 2.0 | 0.8 | $^{16}O + {}^{16}O$ |
| Si | Fe | Ti, V, Cr, Mn, Co, Ni | 3.5 | 0.02 | $^{28}Si \rightarrow \ldots$ |