The development of a heat resistant chocolate (HRC) has been a formidable task challenging researchers since the 1940’s. Today we have focussed on utilizing novel structuring techniques to produce chocolate which resists deformation at temperatures above 40°C. It was hypothesized that by adding ethylcellulose solubilised in ethanol to chocolate and evaporating off the EtOH an organogel could be formed in situ with the fat phase of the chocolate. HRC was produced by mixing a 20% EC in EtOH solution with molten chocolate. The EtOH was evaporated off and the resulting chocolate was incubated at 40°C for 2hr and tested for hardness. It was found that milk chocolate with 1.9% EC had a hardness of 25.95 N whereas the control chocolate was too soft to be tested. Further experiments revealed that white and dark chocolates had hardness of 29.49 and 10.53 N respectively. The hardness of the chocolate was dependent on chocolate type, amount of EC, and molecular weight of the EC. Addition of EC to chocolate represents a new strategy for manufacture of HRC. Future work should focus on determining the mechanism by which heat resistance is achieved in these chocolates.