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**Dynamic Fragility and the Glass Transition: Is there a relationship?**[1] GREGORY MCKENNA, QIAN QIN, Texas Tech University — There have been multiple efforts over the years to correlate dynamic fragility, i.e., a Tg normalized temperature dependence of the dynamics, with various thermodynamic and dynamic parameters. Here we make a case that the dynamic fragility m=dln(viscosity)/d(Tg/T) evaluated at T=Tg is in fact strongly correlated to the glass transition Tg itself except for inorganic network glasses. We compile literature data for dynamic fragility m for six types of glass forming liquids: polymers, small molecule organics, hydrogen bonding organics, inorganics, ionic and metallic glass formers and find that different categories of glass forming liquids exhibit different behaviors in terms of the correlation between m and Tg, a correlation not previously examined. For hydrogen bonding organics, polymeric and metallic glass formers, there is a near linear increase in m with increasing Tg. For inorganic glass formers, m appears almost independent of Tg, remaining nearly constant over a wide range in Tg. We also investigated the apparent activation energy Eg at Tg and found that Eg increases with the square of Tg for hydrogen bonding organics, polymeric and metallic glass forming liquids, while Eg of the inorganics has a linear dependence on Tg.

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