

Competition Corner: Competing Structure Claims

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Original fictional structure-card challenges; no materials or procedure is implied.

Challenge 21. Card J has four electron domains and two lone pairs; its two identical polar bonds are stated to be bent. Card K has two identical polar bonds and no central lone pairs, stated to be linear. Compare their net-dipole tendencies, then explain why the cards alone cannot establish relative boiling points.

Challenge 22. A fictional table gives Card L: 36.0 g mol^{-1} , nonpolar, dispersion only; Card M: 36.0 g mol^{-1} , polar, dispersion plus dipole-dipole. A property card lists a higher temperature transition for L. Give two alternative structural/model explanations that could reconcile the data without declaring the table wrong.