

# Sticking of Extruded Sheet

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It is well-known that when a roll or the sheet contacting it is "too hot", the sheet will stick to the roll, marring the sheet surface. Less obvious is the fact that there is not a single roll-sheet interface temperature above which sticking occurs for a given semi-crystalline polymer. The critical temperature depends very much on the state of crystallization of the sheet surface. A fully crystallized surface will stick at a significantly higher temperature than a substantially amorphous one. The key point to remember here is that polymer crystallization takes time. Even if the thermodynamic requirements for crystallization are satisfied, the rate may be slow. Therefore, when a sheet surface reaches a given roll, it may not have sufficiently crystallized because of its previous temperature vs time history. Another point is that a roll's surface may run hotter than its internal heat transfer fluid at steady state.

- Moris Amon, Mobil Chemical Co.

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