



Compression Roll Drawing

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Compression Roll Drawing (CRD) is a patented Machine Direction Orientation process whereby plastic film or sheet is simultaneously compressed and drawn (i.e. stretched). Parkinson Technologies Inc. is the worldwide exclusive licensee of this technology.

Why Use CRD?

Enable production of low draw ratio OPP sheet

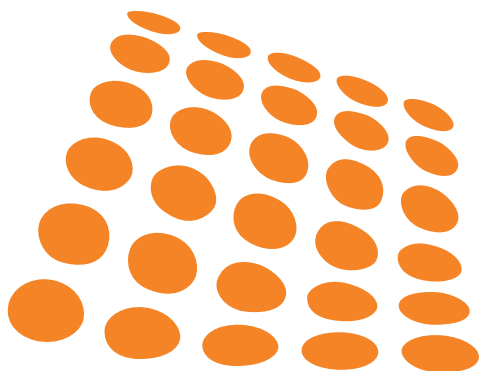
- Produce thicker oriented polypropylene sheet
- Adjust degree of orientation to match needs

Improve material properties

- Clarity/haze
- Low temperature impact toughness
- Tensile strength
- Modulus

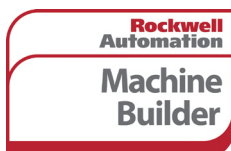
Improve processing in subsequent operations

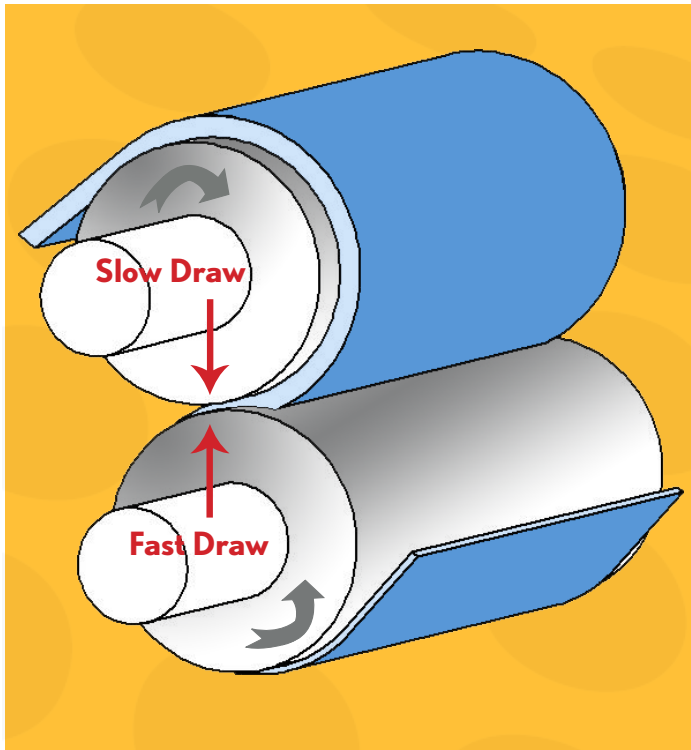
- Eliminate PP sagging when thermoforming
- Increase sheet rigidity



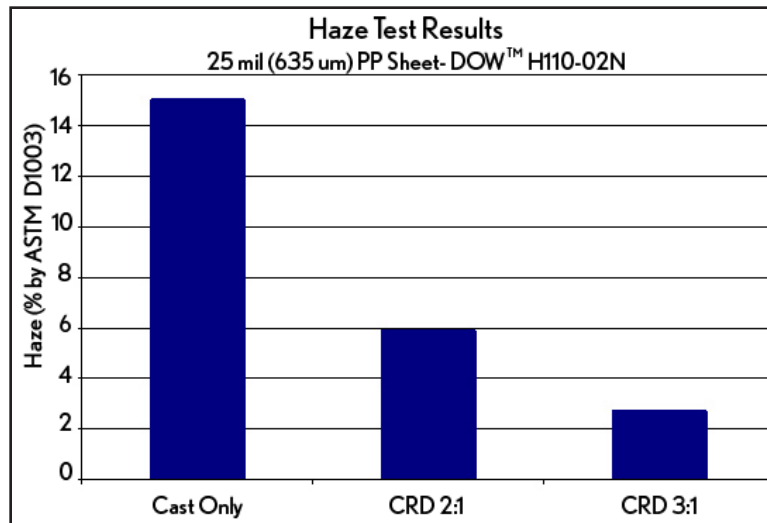
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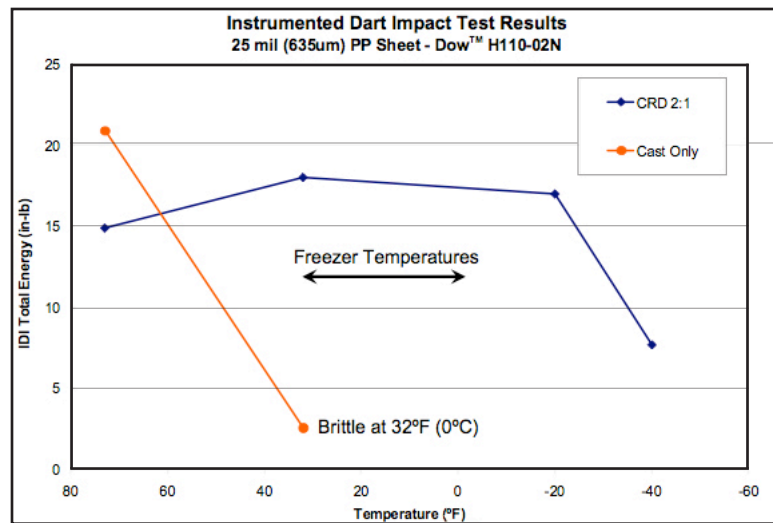


In collaboration with The Dow Chemical Company, Parkinson Technologies Inc conducted a series of trials designed to illustrate and document the advantages of using CRD technology for orienting polypropylene sheet. Materials provided by DOW™ were processed at Parkinson’s Marshall and Williams Plastics Extrusion and Orientation Pilot Lab Facility located at their corporate headquarters in Woonsocket, Rhode Island. Properties testing and thermoforming trials were conducted at The Dow Chemical Company’s TS&D facilities in Midland, Michigan. For more information or to arrange lab trials using your materials, contact Parkinson Technologies at (401) 762-2100.



Haze Test Results:

This chart illustrates typical improvement in optical properties that can be achieved as CRD draw ratio is increased. In this case, haze was reduced by more than 80% in 3:1 compression roll drawn sheet, compared to equivalent as-cast sheet. The finished thickness on all samples tested was 25 mils.



Instrumented Dart Impact Test Results:

This chart illustrates the improvement in low temperature impact properties of polypropylene that can be obtained through CRD machine direction orientation. Where as the toughness of cast polypropylene sheet dropped off significantly from room temperature down to freezing, 2:1 compression roll drawn sheet maintained toughness down to -20° F before suffering significant losses in toughness.