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## **Thermal Oxidation during Extrusion of Polyolefins**

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During extrusion of polyethylene and polypropylene exhibit a degradation which appears as small colored particules which are released in the final parts. We have located the origin of this defect inside the machine and reproduced it in a pilot-line to enhance this defect. A systematic analysis of the pertinent parameters exhibit the role of temperature, pressure and presence of oxygen. Extrusions under nitrogen or CO<sub>2</sub> are able to drastically reduce the appearance of these defects. Optical and infrared microscopy prove that it's not a thermal degradation but a thermo-oxidative degradation. A quantitative analysis of infrared spectra show that a particular chemical function is responsible of the degradation and of the color. The visible absorption spectrum was calculated by quantum mechanics to verify this assertion.