



## Experiment Report Form

**The double page inside this form is to be filled in by all users or groups of users who have had access to beam time for measurements at the ESRF.**

Once completed, the report should be submitted electronically to the User Office using the **Electronic Report Submission Application:**

<http://193.49.43.2:8080/smis/servlet/UserUtils?start>

### ***Reports supporting requests for additional beam time***

Reports can now be submitted independently of new proposals – it is necessary simply to indicate the number of the report(s) supporting a new proposal on the proposal form.

The Review Committees reserve the right to reject new proposals from groups who have not reported on the use of beam time allocated previously.

### ***Reports on experiments relating to long term projects***

Proposers awarded beam time for a long term project are required to submit an interim report at the end of each year, irrespective of the number of shifts of beam time they have used.

### ***Published papers***

All users must give proper credit to ESRF staff members and proper mention to ESRF facilities which were essential for the results described in any ensuing publication. Further, they are obliged to send to the Joint ESRF/ ILL library the complete reference and the abstract of all papers appearing in print, and resulting from the use of the ESRF.

Should you wish to make more general comments on the experiment, please note them on the User Evaluation Form, and send both the Report and the Evaluation Form to the User Office.

### **Deadlines for submission of Experimental Reports**

- 1st March for experiments carried out up until June of the previous year;
- 1st September for experiments carried out up until January of the same year.

### **Instructions for preparing your Report**

- fill in a separate form for each project or series of measurements.
- type your report, in English.
- include the reference number of the proposal to which the report refers.
- make sure that the text, tables and figures fit into the space available.
- if your work is published or is in press, you may prefer to paste in the abstract, and add full reference details. If the abstract is in a language other than English, please include an English translation.



	<b>Experiment title:</b> <b>Structure vs Performance</b>	<b>Experiment number:</b> ME161
<b>Beamline:</b>	<b>Date of experiment:</b> from: 26 <sup>th</sup> Sept 2001 to: 29 <sup>th</sup> Sept 2001	<b>Date of report:</b> 1 <sup>st</sup> Sept 2002
<b>Shifts:</b>	<b>Local contact(s):</b> Dr. Ann Terry	<i>Received at ESRF:</i>
<b>Names and affiliations of applicants</b> (* indicates experimentalists): <b>Frank vander Burgt</b> (*) <b>Sanjay Rastogi</b> (*)		

**Report:** Influence of cooling rate from the melt on the polymorphism and crystallinity is investigated as a function of isotacticity and stereo-defect distribution in polypropylenes. Detailed analysis of wide angle X-ray diffraction patterns show that crystallinity in the used materials is nearly independent of the experimental cooling rates (0.5 – 40 °C/min). At high cooling rates the materials exist mainly in the  $\alpha$ -phase, whereas the amount of the  $\gamma$ -phase increases at the lower cooling rates. With an increasing amount of stereo-defects this cooling rate dependence on the polymorphism is enhanced. The effect of different stereo-defect distributions, as observed in metallocene- (random) and Ziegler-Natta (block-like) derived isotactic polypropylenes, was investigated. The formation of the  $\gamma$ -phase is more prominently present in materials with a random defect distribution compared to the materials in which the stereo-defects have a block-like distribution. The crystallinity decreases more rapidly as a function of the tacticity in the random defect-distributed materials.

**For details please see: J. Macromol. Sci. 2002, PhysicsB41, 1091-1104**



