# Table of Contents

Preface  
Table of Contents

## 1. Introduction

1.1. Different Types of TSDR Industrial Routes  
1.2. Economical and Ecological Benefits  
1.3. Metallurgical Differences between Conventional Rolling and TSDR  
1.4 Scope

## 2. Strength and Toughness: Relationships with Microstructure

2.1. Introduction  
2.2. Strength (in Low Carbon Steels)  
2.3. Toughness  
2.4. Microstructural Homogeneity and Toughness (in the Ductile-Brittle Regime)

## 3. Microstructural Control during and after Hot Rolling

3.1. Microstructural Changes during Hot Working  
3.2. Conventional Controlled Rolling  
3.3. Recrystallisation Controlled Rolling. Effect of Titanium  
3.4. Mean Flow Stress  
3.5. Phase Transformation during Cooling. Precipitation Hardening

## 4. TSDR: Continuous Casting and Tunnel Furnace

4.1. Continuous Casting  
4.2. Tunnel Furnace

## 5. TSDR: Rolling of Plain Carbon and Microalloyed Steels

5.1. As-Cast Austenite Refinement  
5.2. Austenite Conditioning  
5.3. Processing Maps  
5.4. Optimisation of Rolling Schedules  
5.5. Phase Transformation

## 6. Industrial Applications

6.1. Structural and HSLA Steels  
6.2. Development of API Grades  
6.3. Dual Phase Steels  
6.4. Concluding Remarks

## 7. References