

# Table of Contents

<i>Abstract</i>	<i>i</i>
<i>Revision Control</i>	<i>ii</i>
<i>Preamble</i>	<i>iv</i>
<i>Table of Contents</i>	<i>ix</i>
<i>List of Figures</i>	<i>xiii</i>
<i>List of Tables</i>	<i>xv</i>
<i>Acronyms &amp; Abbreviations</i>	<i>xvii</i>

## Chapters

Executive Summary	1.1
About n-Propanol	1.1
n-Propanol Production Process	1.2
Economic Analysis	1.3
About n-Propanol	2.1
Commercial Forms & Applications	2.2
n-Propanol Production Routes	2.3
Process Overview	3.1
Technology Maturity Assessment	3.1
Product(s) Description	3.3
Inputs Description	3.3

Industrial Site Configuration	4.1
Process Unit	5.1
Block Flow Diagram	5.2
Description	5.4
Site Infrastructure	6.1
Assumptions	6.1
Description	6.2
Process Consumptions & Labor Requirements	7.1
Key Input & Output Figures	7.1
Labor Requirements	7.2
Capital Costs Summary - United States	8.1
Assumptions	8.2
Total Capital Investment	8.3
Operating Costs Summary - United States	9.1
Assumptions	9.2
Operating Variable Costs	9.3
Total Operating Cost	9.3
Product Value Summary - United States	10.1
Production Costs Summary - United States	11.1
n-Propanol Production Cost Datasheet	11.1
Economic Remarks	11.1
Analysis Methodology Summary	12.1
References	13.1
Methodology References	13.1
Analysis References	13.2

## Appendixes

Utilities Consumption Details * Only in Detailed & Premium Editions *	A.1
Materials & Utilities Pricing Data - United States * Only in Detailed & Premium Editions *	B.1
Analysis Pricing Basis	B.1
Historical Prices	B.1
Capital Costs Details - United States * Only in Detailed & Premium Editions *	C.1
Fixed Capital Cost Details	C.1
Working Capital Details	C.3
Additional Capital Requirements Details	C.4
Operating Costs Details - United States * Only in Detailed & Premium Editions *	D.1
Utilities Costs Details	D.1
Operating Fixed Costs Details	D.2
Depreciation	D.3
Product Value Details - United States * Only in Detailed & Premium Editions *	E.1
Corporate Overhead Costs Details	E.1
Return on Capital Employed (ROCE)	E.1
Plant Cost Breakdowns * Only in Premium Edition *	F.1
ISBL Construction Cost Breakdown	F.1
OSBL Construction Cost Breakdown	F.3
Plant Cost Breakdown per Discipline	F.14
Plant Capacity Assessment - United States * Only in Premium Edition *	G.1
Capital Cost for Different Capacities	G.1
Operating Cost for Different Capacities	G.3
Project Implementation & Construction Schedule * Only in Premium Edition *	H.1
Process Flow Diagrams & Equipment List * Only in Premium Edition *	I.1
About Intratec	J.1

Our Business	J.1
Our Products	J.2
General Terms & Conditions	K.1
Report Use Restrictions	L.1

## List of Figures

- 1.1 Process Schematic Diagram
- 2.1 n-Propanol Production Routes Diagram
- 4.1 Industrial Site Configuration
- 5.1 Block Flow Diagram - Manufacturing Process
- 6.1 Area 90 - Storage Installations
- 6.2 Area 91 - Utilities Facilities
- 6.3 Area 92 - Support & Auxiliary Buildings
- 8.1 Capital Investment Composition
- 8.2 Capital Investment Summary
- 9.1 Operating Costs Composition
- 9.2 Operating Costs Summary
- 10.1 Product Value Composition
- 10.2 Product Value Summary
- 12.1 Intratec Commodity Production Costs Reports Development Methodology
- B.1 Historical Prices
- C.1 Plant Cost Summary
- D.1 Cost Distribution of Utility Consumption
- F.1 Process Unit (ISBL) Construction Cost by Functional Unit
- F.2 Site Infrastructure (OSBL) Construction Cost by Area
- F.3 Storage Installations Construction Cost per Piece of Equipment
- F.4 Utilities Facilities Construction Cost per Piece of Equipment

F.5	Support & Auxiliary Buildings Construction Cost per Piece of Equipment
F.6	Plant Construction Cost Summary
F.7	Direct Construction Costs by Discipline
F.8	Indirect Costs Summary
G.1	Capital Investment Versus Plant Capacity
G.2	Operating Cost Versus Plant Capacity
H.1	Implementation & Construction Schedule
I.1	Convention for Process Equipment Tags
I.2	Symbols for Lines
I.3	Equipment Symbols - Reactors & Vessels
I.4	Equipment Symbols - Heat Exchangers
I.5	Equipment Symbols - Compressors & Pumps
I.6	Equipment Symbols - Columns
I.7	Equipment Symbols - Solids Processing
I.8	Process Flow Diagram

## List of Tables

1.1	n-Propanol Production Cost Summary
3.1	Process Technology Maturity Scale
7.1	Raw Materials Consumption
7.2	Products Generation
7.3	Labor Requirements
8.1	Capital Investment Summary
9.1	Operating Variable Costs
9.2	Operating Costs Summary
10.1	Product Value Composition
11.1	n-Propanol Production Cost Datasheet
12.1	Production Cost Datasheet Template
A.1	Net Utility Consumption Rates (per metric ton of n-Propanol)
A.2	Net Utility Generation Rates (per metric ton of n-Propanol)
B.1	Materials & Utilities Prices (United States, XXXX)
C.1	Plant Cost Estimate Accuracy Range (USD Million)
C.2	Owner's Cost Details
C.3	Fixed Capital
C.4	Working Capital Details
C.5	Additional Capital Requirements Details
D.1	Net Utilities Details
D.2	Operating Fixed Costs Details

- E.1 Corporate Overhead Costs Details
- F.1 Process Unit (ISBL) Construction Cost by Functional Unit
- F.2 Area 90 - Storage Installations: Scope Description
- F.3 Area 91 - Utilities Facilities: Scope Description
- F.4 Area 92 - Support & Auxiliary Buildings: Scope Description
- F.5 Site Infrastructure (OSBL) Construction Cost by Piece of Equipment
- F.6 Plant Construction Cost by Discipline
- G.1 Capital Investment Analysis for Different Capacities (USD Million)
- G.2 Operating Cost & Product Value Analysis for Different Capacities (/mt)
- H.1 Project Phases Schedule
- I.1 Diagram Legend - Utilities
- I.2 Diagram Legend - Equipment Type