

1. Record Nr.	UNINA9910830985103321
Titolo	Spray dryers [[electronic resource] ] : a guide to performance evaluation // prepared by the Equipment Testing Procedure Committee
Pubbl/distr/stampa	New York, : American Institute of Chemical Engineers, c2003
ISBN	1-282-77377-1 9786612773778 0-470-92479-9 0-470-92478-0
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (76 p.)
Collana	AIChE equipment testing procedure
Disciplina	660.28426 660/.28426
Soggetti	Spray drying - Equipment and supplies - Evaluation Chemistry, Technical - Equipment and supplies - Evaluation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"AIChE equipment testing procedure". "Pub. E-32".
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	SPRAY DRYERS: A Guide to Performance Evaluation; Table of Contents; 100 Purpose and Scope; 101 Purpose; 101.1 Purpose; 101.2 Summary; 101.3 Scope of Spray Drying; 101.4 Reasons for Testing Spray Dryers; 102 Design vs. Operational Variables; 103 Liability; 200 Definitions and Descriptions of Terms; 201 Dryer Design; 201.1 Dryer Chamber; 201.2 Airflow Patterns; 201.3 Product Flow; 201.4 Atomizer; 201.5 Heating Methods; 201.6 Product Recovery; 201.7 Airflow Motive Force; 202 Description of Terms; 202.1 Drying; 300 Test Planning; 301 Preliminary Objectives; 301.1 Test Objectives 301.2 Organizational Resources301.3 Schedule; 301.4 Dryer Controls and Instrumentation; 301.5 Peripheral Equipment; 301.6 Pretest Calculations; 301.7 Test Plan; 301.8 Environmental; 301.9 Cleaning and Inspection; 301.10 ""Dry Run""; 302 Types of Test; 302.1 Dryer System Capacity; 302.2 Heat and Material Balance; 302.3 Product Properties; 302.4 Acceptance Test; 303 Variables Affecting Product Properties; 303.1 Residual Moisture Content; 303.2 Atomization; 303.3 Heat Sensitivity; 303.4 Physical Properties; 303.5 Prediction of Capacity

and Rate Effects; 303.6 Summary  
304 Data Requirements - Product Properties  
304.1 Data Requirements;  
304.2 Atomizer Data; 304.3 Complete Heat and Material Balances;  
304.4 Peripheral Equipment Limitations; 304.5 Product Quality  
Measurements; 304.6 Particle Properties; 305 Test Preparation; 305.1  
Objective of Tests; 305.2 Operating Variables; 305.3 Test Data Sheet;  
305.4 Measurement Methods; 305.5 Test Plan; 305.6 Planning Check  
List; 400 Methods of Measurement and Sampling; 401 Gas Temperature  
and Humidity; 401.1 Selection of Temperature Sensors; 401.2  
Installation of Temperature Sensors  
401.3 Duct Temperature and Velocity Profiles  
401.4 Accuracy of Dry  
Bulb Temperatures; 401.5 Atmospheric Humidity; 401.6 Dryer Exit  
Humidity; 401.7 Accuracy of Gas Wet Bulb Temperature; 402 Gas Flow;  
402.1 Installed Flow Meters; 402.2 Inlet Gas; 402.3 Exit Gas  
Measurement; 403 Material Temperature and Moisture Content; 403.1  
Product Temperature Measurement; 403.2 Product Moisture Content;  
404 Dust Flow Measurements; 405 Radiation and Convection Heat  
Losses; 405.1 Estimated Heat Loss; 405.2 Measuring Heat Loss; 405.3  
Outdoor Equipment; 406 Miscellaneous Measurements; 406.1 Static  
Pressure  
406.2 Location of Pressure Sensors  
406.3 Electric Power Measurements;  
500 Test Procedure; 501 Plant-Scale Test; 502 Exploratory  
Experiments; 502.1 Production Capacity; 502.2 Product Quality; 503  
Preliminary Trial; 503.1 Water Run; 503.2 Dryer Operability; 504  
Definitive Test; 504.1 Test Start-Up; 504.2 Running a Definitive Test in  
a Plant-Scale Dryer; 505 Humidity and Moisture Measurements; 600  
Computation of Results; 601 Nomenclature; 601.1 Variables; 601.2  
Properties; 601.3 Subscripts; 602 Material Balances; 602.1 Dry Solids;  
602.2 Moisture Balance; 602.3 Psychrometric Chart Method  
602.4 Humid Air Volume

---

## Sommario/riassunto

Spray Dryers: A Guide to Performance Evaluation, Second Edition  
discusses the reasons for spray drying. These reasons are usually to  
produce a product with certain desired properties or with better  
efficiency than other methods. The book discusses how to plan in light  
of these objectives and gives guidance on the variables affecting  
product properties and dryer performance, to decide which variables to  
evaluate. Technical spray dryer installations are briefly described.  
Checklists are given to aid in planning measurements and listing steps  
needed for a test.

---