

# Automated Solid Dispensing Trends 2009



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## Executive Summary

- This market report summarizes the results of HTStec's global web-based benchmarking survey on the automation of solid/powder dispensing carried out in April 2009.
- The study was initiated by HTStec to meet the needs of the survey sponsors and was part of HTStec's ongoing tracking of emerging life science technologies and marketplaces.
- The main objectives were to comprehensively document current practices, preferences and trends in the automation of solid/powder dispensing in compound management facilities and in groups downstream.
- The survey looked at the following aspects of solid/powder dispensing as practiced today (2009) and in some cases as predicted for the future (2011): the primary and secondary application focus of dispensing activities; frequency of transfer requests from groups downstream of compound management; how big a problem solid/powder dispensing is today; current view on the need for automation of solid/powder dispensing; % of all solid transfer performed manually; % of solid library most in need of automated sample transfer approaches; main motivation for adopting automation; how frequently different types of problematic solid/powders are encountered; how important it is to dispense problematic types of solid; typical solid/powder dispensing practices today; the need for repeat or multiple dispensing; approach to cross-contamination during solid transfer; maximum price for a single use solid transfer disposable; containers types most used during dispensing; add-on modules needed in an automated dispensing system; throughput requirements of an automated dispensing system; knowledge and use of commercial dispensing systems; budget for solid/powder dispensing instrumentation; interest in purchasing new solid/powder dispensing systems; biggest concern about available solid/powder dispensing technologies; level of belief in vendor automated dispensing claims and vendor action needed to sign-off a possible purchase; and opinion on automated dispensing system vendors.
- The main questionnaire consisted of 23 multi-choice questions and 3 open-ended questions. In addition, there were 7 questions related solely to the administration and demographics of survey.
- The survey collected 60 responses (51 complete and 9 partially filled out) from 37 different organizations.
- Survey responses were geographically split: 70% North America, 28% Europe, and 2% Rest of World.
- Respondents came from 27 Large Pharma; 11 Medium-Small Pharma; 8 Biotech Company; 5 Academic Screening Center; 5 Univ. Res. Inst. Gov't Lab.; 2 Other; 1 Contract Research Organization; and 1 Agrochemical Company.
- Respondent's main group activity was: 51% Compound Management; 22% Other; 15% Lead Discovery/Screening; 10% Formulation Development; and 2% Medicinal Chemistry.
- Survey respondents had the following job roles or positions which were in descending order: 13 Section/Group Leader; 8 CM Store Manager; 8 Senior Scientist/Researcher; 6 Research Scientist; 6 Lab Manager; 6 Director; 6 Other; 5 Department Head; 1 Principal Investigator; and 1 Professor.
- Survey results were expressed as an average of all survey respondents. In addition, the data was fully reanalyzed after sub-division into the following 5 survey groups: 1) Large Pharma; 2) All Other Organizations; 3) Compound Management; 4) Europe; & 5) North America.
- The primary and secondary application focus of respondent's solid/powder dispensing activities were the preparation of primary liquid stocks for compound storage and the supply of solid samples for retest/hit-to-lead confirmation.
- The frequency with which the majority of respondents received solid/powder transfer requests from groups downstream of compound management investigating new application areas was all the time (>25 times per year).
- Most respondents recognize there is a problem/bottleneck with solid/powder dispensing in their company, but are OK with it.
- The majority opinion on the automation of solid/powder dispensing today was it was useful, they can see application niches that would definitely benefit.
- The median proportion of all solid/powders transfers performed manually today (2009) was 100%.
- The median proportion of respondent's solid compound library in need of automated sample transfer was 30%.
- To avoid tedious and time consuming manual processing was rated the main motivation for automating solid/powder dispensing.

- Problems dispensing solids/powders were encountered with 63% of compounds (i.e. only 37% were non-problematic solids). The most frequently encountered problem was with light/low density/fluffy solids and being able to dispense these using an automated solid transfer system was rated highly desirable.
- Respondent's current median solid dispensing status was as follows: most frequent mass range transferred was 2–5mg; acceptable deviation from the requested mass was +/- 10%; starting mass was 10–25mg; and the number of solids transferred per day was 50–100.
- Most respondents rarely undertake repeat or multiple dispensing and the median % CV required on a repeat dispense was 5–10%.
- The current approach to minimizing cross contamination that might arise on a tool during the transfer of solid materials was to make multiple use of a removable/reusable transfer tool (cleaned or reconditioned off-line between transfers).The preferred approach was a single use, fully disposable transfer tool.
- The median maximum price respondents would pay per solid transferred to access a single use fully automatable transfer tool was \$0.11–\$0.25.
- The dram vial was rated the container respondents had greatest interest in dispensing solids/powders into.
- A barcode reader and static suppression/de-ionization were the add-on modules respondents most wanted to see on an automated solid/powder dispensing and weighing system.
- The median throughput wanted in an automated solid/powder transfer system was 100–250 samples transferred per 8h day.
- Knowledge and use of those commercial systems available for automated solid powder dispensing was greatest for those offerings supplied by Mettler Toledo and Symyx. Greatest consideration was however being given to the future purchase of the systems offered by BioDot.
- The impact of the current economic situation on respondent's budget and purchasing decisions/preferences for automated solid/powder dispensing systems was obtained.
- A large dead volume (minimum mass required) was rated as their biggest concern about solid/powder dispensing technologies.
- Most respondents were skeptical (still need convincing) about vendor automated solid/powder dispensing claims, and a successful on-site instrument demo was the minimum vendor action required to sign-off on a possible purchase.
- Feedback on the vendors of automated solid/powder dispensing systems was limited suggesting a lack of knowledge of the available automation vendors and their offerings. Mettler Toledo received the most selections for the vendor positive attributes/desired characteristics considered.
- Respondent's feedback on the specific issues that have prevented the wider use of solid/powder dispensing automation and the unmet needs that exist in solid/powder dispensing today are documented.
- Respondent's median budget for the purchase of solid powder dispensing instrumentation was no budget today (2009), rising to \$25K–\$50K in the future (2011).
- 15 purchasing plans from 11 different labs interested in acquiring automated solid/powder dispensing systems over the next 3 years were documented. Greatest interest was for acquiring Symyx and BioDot automated dispenser workstations.
- A bottom up model was developed to estimate the global market for automated solid/powder dispensing systems using data derived from this survey. Over the next few years (2009–2011) it was estimated that sales of automated dispensing systems could total around \$17 Million.
- The full report provides the data, details of the breakdown of the responses for each question and the estimates for the future (2011). It also highlights a few interesting differences between the survey groups.

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## General Information on HTStec and HTStec's Trends Market Reports

- HTStec Limited an independent market research consultancy founded in September 2003 whose focus is on assisting clients delivering novel enabling platform technologies (liquid handling, laboratory automation, detection instrumentation and assay reagent technologies) to drug discovery and the life sciences. Over the past 5 years HTStec has published 43 market reports mainly on drug discovery technologies and authored 27 review articles in Drug Discovery World.
- HTStec's Trends reports owe their origins to the need by developers and vendors of new enabling technologies in drug discovery to get up-to-date relevant market metrics on which to base informed business decisions.
- Typically focused on a specific market niche or segment, in many cases overlooked or frequently misunderstood by broader market studies.
- Investigations are mainly initiated in response to a sponsor's specific requests.
- HTStec's extensive experience of the market, both as a Pharma End-User and working for a major Life Science Tool Provider ensures the industry relevance of the market research collected.
- Based entirely on web-based feedback from potential customers typically drawn mainly from Pharma and Biotechs, although increasingly University and Research Institute labs are also being researched.
- Produced extremely rapidly and typically published within 3 weeks of starting the collection phase.
- Reports are short, concise and focused on giving readers the basic data, analyzed in several different ways.
- Limited to reporting the main findings alone, without exhaustive discussion on the relevance of the results.
- Market estimates, where done, are mainly based on bottom-up calculations and usually avoid attempts to forecast widely beyond the next 2-3 years. Full details on the derivation of market estimates are given so readers can apply their own factors and easily make alternative estimates if they prefer or know better.
- Owing to the sensitivity of some of the data collected, all reference to the origin of participating companies is removed, data is pooled to get an industry average and the anonymity of all respondents fully preserved and guaranteed.
- Unlike alternatives HTStec's Market Surveys and Report are aimed at giving readers, information they want and can rely on, not information they don't need, cannot easily discern or is of dubious authenticity.
- HTStec aims to be the premier global provider of highly focused market research on enabling technologies in drug discovery.
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