



Development of Industry-Wide Best Management Practices for RoHS Compliance

NEMI RoHS/Pb-Free Summit

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The EU RoHS Directive

- On 2/13/03, the European Union (EU) enacted the Restriction on Hazardous Substances Directive (RoHS Directive).
- The Directive requires producers of covered electrical and electronic equipment (EEE) to eliminate the use of certain substances in EEE put on the EU market by 7/1/06.
- The substances include lead, mercury, cadmium, hexavalent chromium, and two brominated flame retardants.

RoHS Directive Implementation

- A Technical Adaptation Committee (TAC) was formed to provide guidance on RoHS Directive implementation.
- The TAC consists of EU member state experts.
- TAC decisions are not binding, but will have significant influence.
- The TAC will determine
 1. The status of current and future exemptions
 2. Maximum concentration limits for banned substances
 3. A method for compliance and enforcement

RoHS Directive Exemption Process

- The Directive allows for exemption of materials and components if substance elimination is technically or scientifically impracticable or where the environmental, health, or consumer safety impacts caused by substitution are likely to outweigh the environmental, health, or consumer safety caused by the continued use of a banned substance.
- Current exemptions are listed in Directive's Annex.
- TAC will make determination on current and proposed exemptions in November, 2004.

Determination of Maximum Concentration Limit Values

- The TAC will set the amount of a banned substance that will be tolerated in EEE sold in the EU after 7/1/06.
- The TAC has recommended a threshold of:
 - ♦ 0.1% by weight in homogeneous materials for lead, mercury, hexavalent chromium, PBB and PBDE.
 - ♦ 0.01% by weight in homogeneous materials for cadmium.
 - ♦ “Homogeneous material” means a unit that cannot be mechanically disjointed into single materials.
- TAC has recommended that this determination be made on a material level.

Determination of RoHS Compliance Method

- The TAC will establish a process for ensuring that the RoHS Directive substance ban provisions are met. Options include
 - Producer self declaration
 - Supply chain declarations
 - Market surveillance/testing
- Industry is also working to develop a test procedure that may become an industry standard in early 2006.
- Due diligence likely to be a defense.
- Evidence of a corporate strategy will be essential.

Development of RoHS Compliance Survey

- A survey was drafted to obtain information on the RoHS Compliance “best management practices” of similarly situated electronic firms.
- The survey consisted of ten questions that took approximately ten minutes to complete.
- No confidential or proprietary questions were asked.
- Questions focused on key elements of a RoHS Compliance Strategy.
- Purpose: Canvas industry for information to help build potential industry strategy

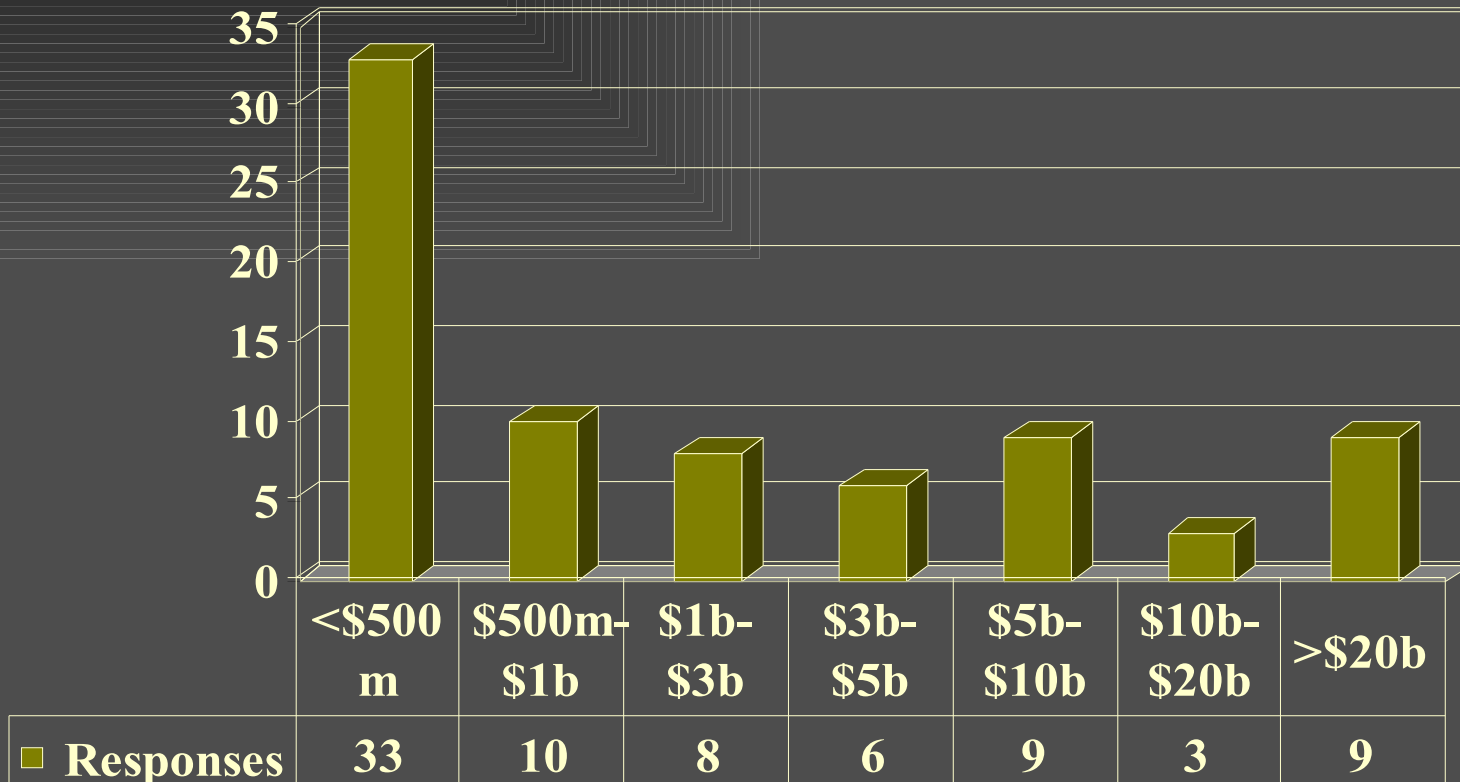
Survey Cohort

- In order to obtain information from relevant individuals, the voting group for the EIA/EICTA/JGPSSI Material Declaration Guide was used as survey cohort.
- The Guide is a key element of a RoHS Compliance Strategy. This list was used because it consists of individuals who are most likely to be aware of RoHS Directive and various RoHS Compliance tools.
- Lists consists of close to 200 industry representatives – majority in US although EU and Asian representation as well.

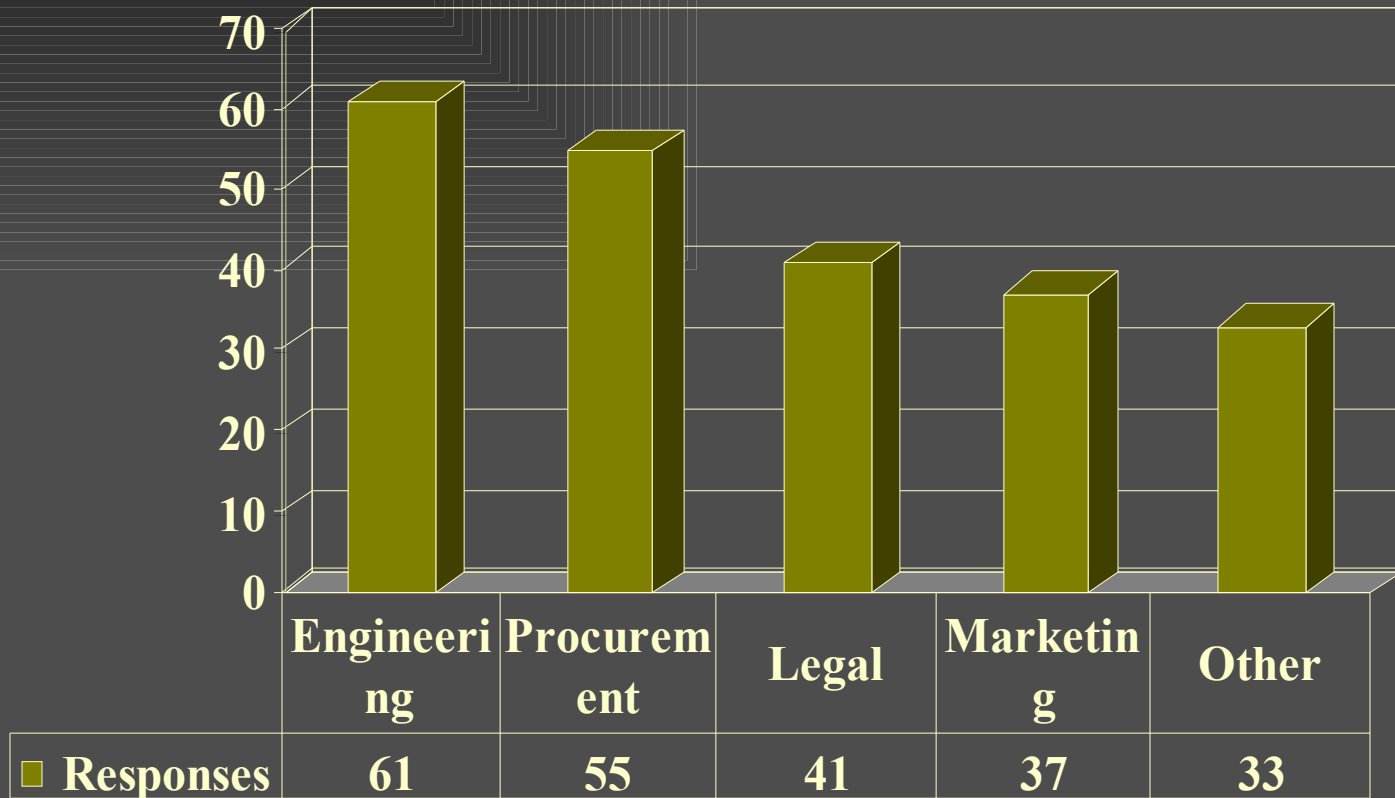
Response Rate

- Survey posted on <http://www.surveymonkey.com>
- Initial e-mail sent out to voting cohort on 6/11/04. Reminder sent on 6/28/04.
- Survey closed on 7/5/04. 80 responses were received. This is a 45.4% response rate!
- The high response rate may be attributed to the targeted survey cohort and a stated commitment to share results with respondents.
- Respondents are very eager to see results - strong interest in RoHS “best management practices.”

Q1: Company's Annual Sales in 2003?

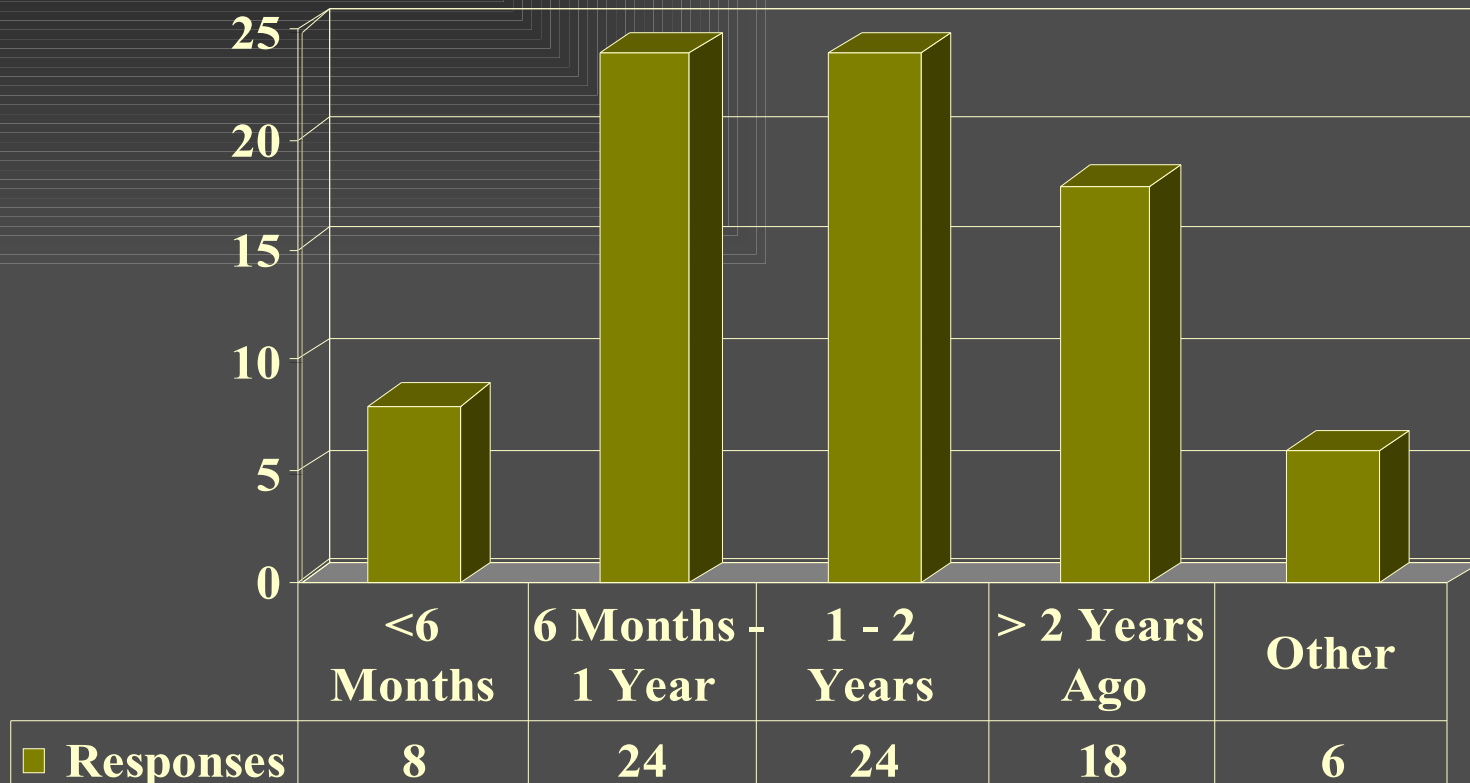


Q2: Key Departments for RoHS Compliance?



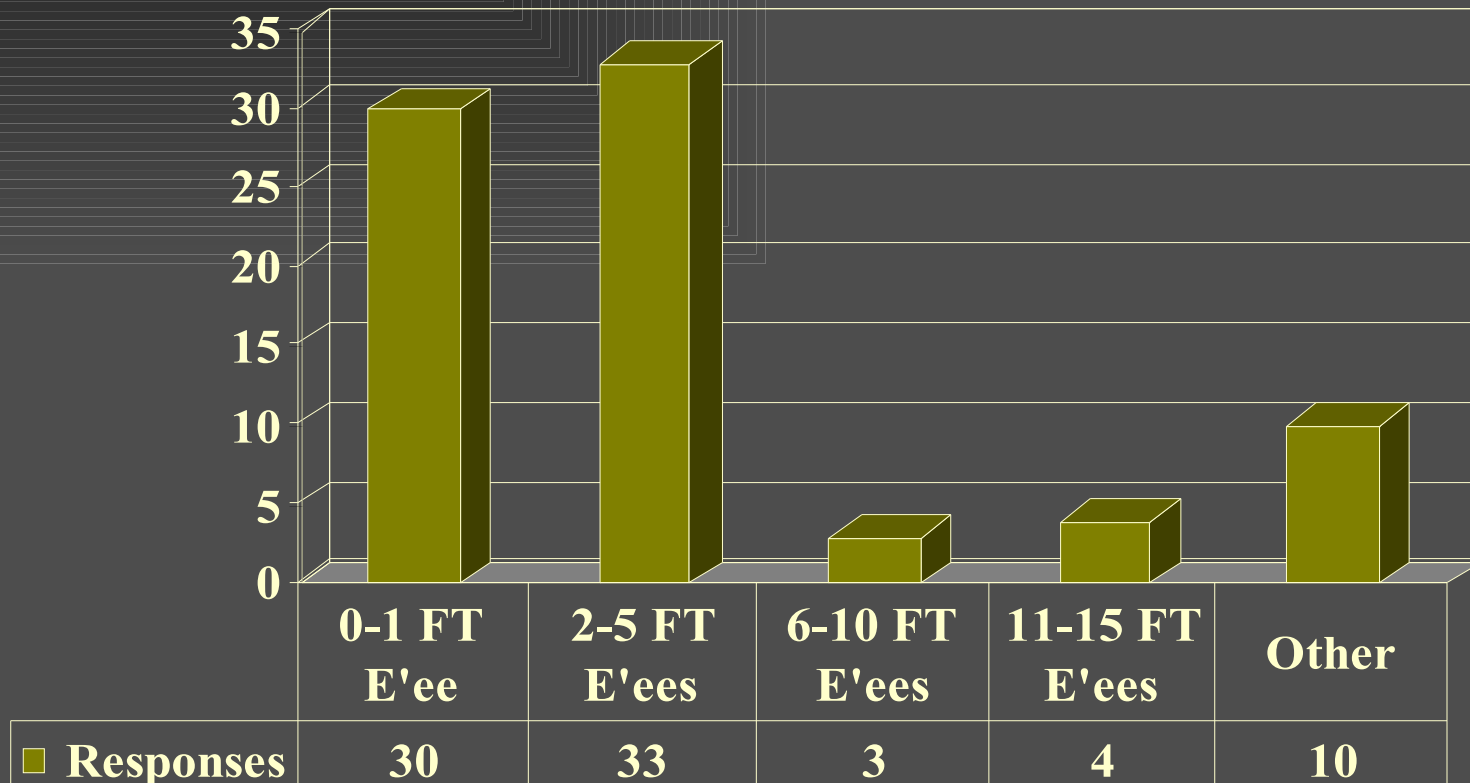
“Other” Departments included: Quality Assurance (11), Logistics/Manufacturing (6), EHS (4), Operations (4), and New Product Development (3).

Q3: When Did Company Begin RoHS Compliance Activities?



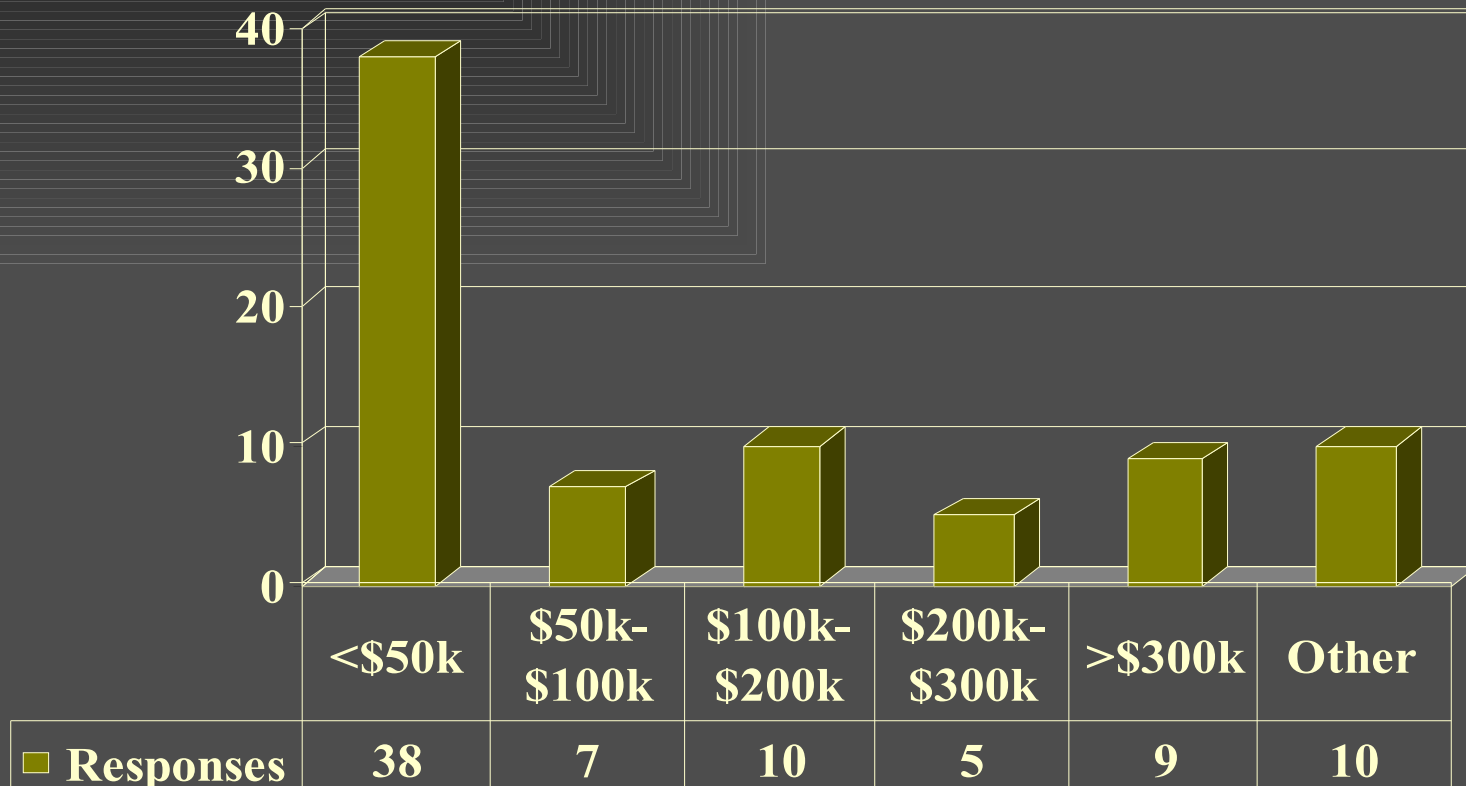
“Other” responses: “late 80s,” “since 1999,” “not started,” “not ready.”

Q4: How Many Fulltime Employees Work on RoHS Compliance?



“Other” responses: “more than 100,” “all are part time,” “don’t know,” “impossible to estimate.”
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Q5: How Much Money is Budgeted for RoHS Compliance?



“Other” responses: “not budgeted,” “don’t know,” “estimate impossible,” “\$100,000,000,” and “\$6 million in capitol alone.”

Q6: Key Elements of Internal RoHS Compliance Strategy?

Element	Present?	High Priority?	Low Priority?	Responses
Corporate Response	70% (52)	64% (47)	24% (18)	74
Company "Roadmap" for Compliance	69% (52)	67% (50)	21% (16)	75
Identification of RoHS Impacted Suppliers	67% (51)	76% (58)	14% (11)	76
Determination of RoHS Impacted Products	67% (50)	80% (60)	11% (8)	75

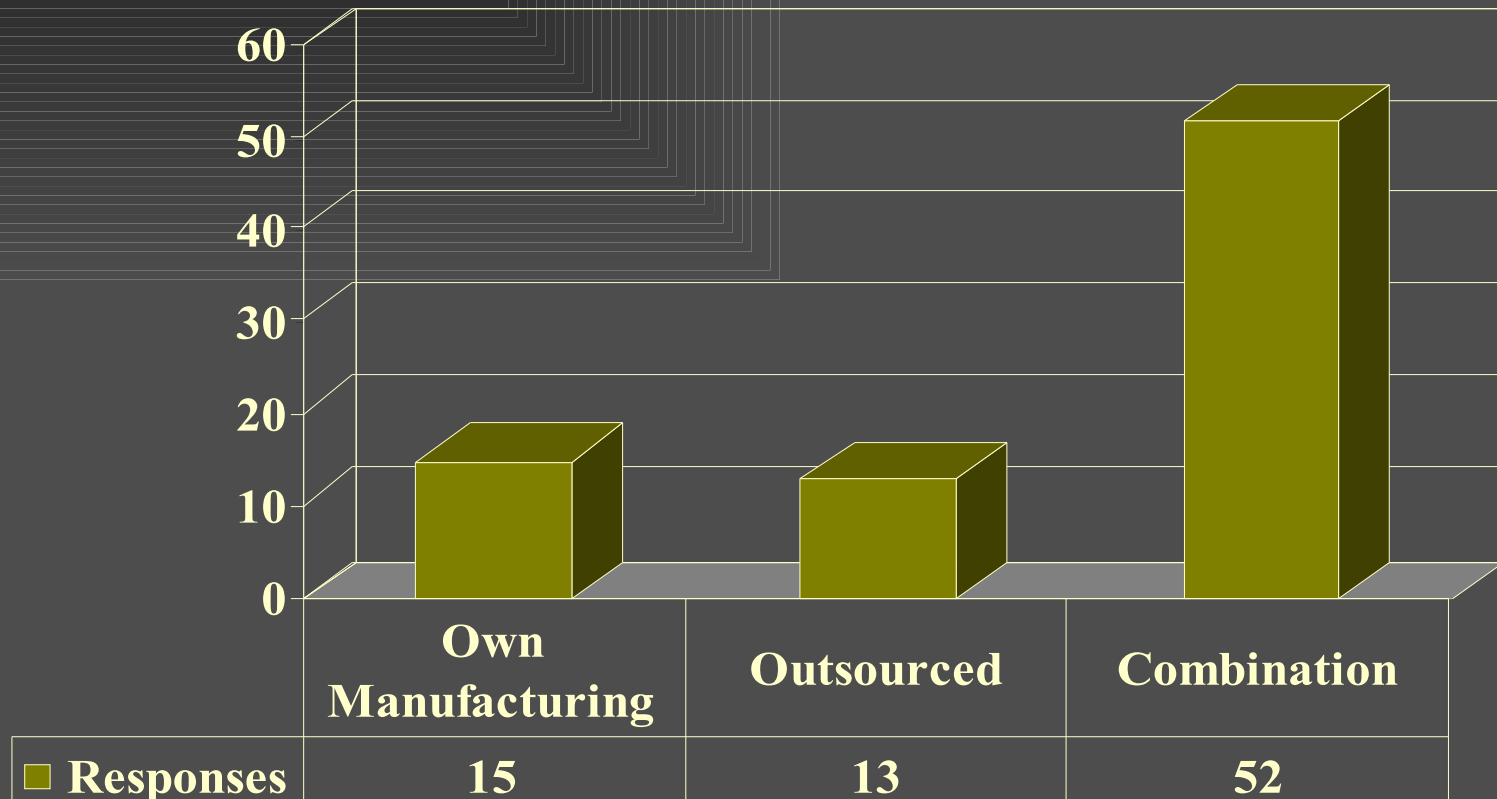
Q6: Key Elements of Internal RoHS Compliance Strategy? (continued)

Element	Present?	High Priority?	Low Priority?	Responses
System for tracking new chemical restrictions	60% (44)	51% (37)	38% (28)	73
Engineering specifications to control chemical contact at design stage	53% (38)	76% (55)	17% (12)	72
Internet tool to communicate with suppliers/customers	25% (15)	40% (24)	57% (34)	60

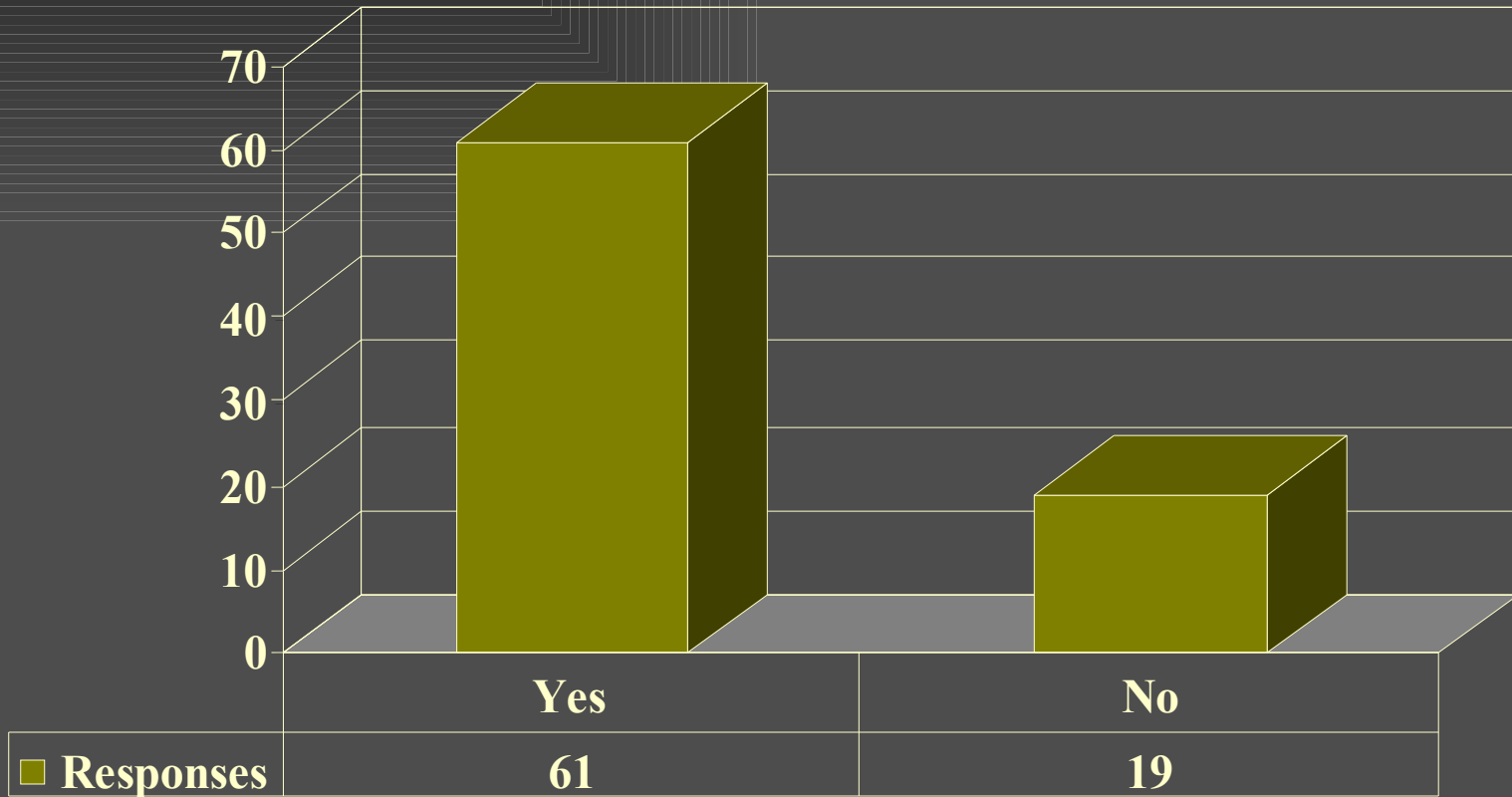
Q7: Key Elements of External RoHS Compliance Strategy?

Element	Present?	High Priority?	Low Priority?	Responses
Use of material declaration questionnaires	61% (42)	62% (43)	23% (16)	69
Request for suppliers' RoHS compliance plans	59% (44)	68% (51)	25% (19)	75
Supplier education	43% (29)	52% (35)	40% (27)	67
Supplier testing	38% (26)	37% (25)	56% (38)	68
Supplier audits	36% (24)	32% (21)	64% (42)	66

Q8: Do You Manufacture or Is Manufacturing Outsourced?



Q9: Would You Share Non-Proprietary Information to Help Develop Industry RoHS Compliance Tools?



Q10: Are Any Key Practices Missing?

25 respondents replied:

(1) Need for Testing Protocols

- 📖 Compliance

- 📖 Reliability

(2) Need for Standardized Supply Chain Tools

- 📖 EIA/EICTA/JGPSSI Material Declaration Standard

(3) Need for Greater Company Awareness

- 📖 Upper Management

- 📖 Engineers

(4) Need for Industry Coordination to Ensure Consistent Implementation

(5) Need for Cost and Quality Data

Next Steps

- Determine whether development of industry-wide “best management practices” guide would be helpful.
- If so, use survey results to start development process.
- Key elements of RoHS Compliance Strategy should be identified and resources developed to support due diligence actions.

Questions/For More Information:

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