



# COST Vs. BENEFIT OF N2 SOLDERING - QUESTIONNAIRE

(please complete this survey and select the following option:)

Option 1: Complete & EMAIL back at EPA.mail@airliquide.com

Option 2 : Print, Complete, & Fax back @ + 1 (708) 401-0505

## Identification:

Surname & Name: \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City & State: \_\_\_\_\_

Country: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

Currency you will use in this survey ? \_\_\_\_\_

Burdunized labor cost (assembly staff) (currency / hour) ? \_\_\_\_\_

## Electronic Assembly Process Information:

Plant location (if different): \_\_\_\_\_

Product manufactured ? \_\_\_\_\_

Are you a Contract Manufacturer ? \_\_\_\_\_

|                                                     |                          |                           |
|-----------------------------------------------------|--------------------------|---------------------------|
| Does your products contain ?<br>(proven fit for N2) | No-Clean                 | High Density Components   |
|                                                     | Fine-Pitch (less 20 mil) | Non Reworkable Components |
|                                                     | Expensive Components     | 2 Sided PCBs              |
|                                                     | OSP/Copper PCBs          | Ni/Au Finish              |
|                                                     | Pd Finishes              | Lead-Free                 |
|                                                     | High Temp Alloys         | Automatic Testability     |
|                                                     | Reliability Important    |                           |

|                          |                     |                               |
|--------------------------|---------------------|-------------------------------|
| Soldering process used ? | Wave Soldering      | Reflow Soldering              |
|                          | Selective Soldering | Reflow of Through-Hole        |
|                          | Dry Storage         | ESS - Thermal Cycling Testing |

Do you intend to acquire new equipment soon ? \_\_\_\_\_

Do you have short/mid-term lead-free projects ? \_\_\_\_\_

Do you plan to use N2 in the next 6-12 months ? \_\_\_\_\_

Do you use any gases now ? \_\_\_\_\_

If yes, what gases ?

|              |       |
|--------------|-------|
| N2           | H2    |
| Other: _____ | _____ |

|                       |       |           |
|-----------------------|-------|-----------|
| Mode of Supply?       | Bulk  | Cylinders |
| Who is your supplier? | _____ |           |

## Wave Soldering

(Please submit all info if a cost-vs.-benefit analysis is requested for your wave soldering process)

|                                                                       |             |                 |
|-----------------------------------------------------------------------|-------------|-----------------|
| Working hours (hours/week)?                                           | _____       |                 |
| Number of wave machines you have ?                                    | _____       |                 |
| Brand & model ?                                                       | _____       |                 |
| # of Waves ?                                                          | single wave | dual wave       |
| Wave width ?                                                          | _____       |                 |
| Do you use N2 now ?                                                   | _____       |                 |
| Are your waves N2 ready ?                                             | _____       |                 |
| What is your fluxing system?                                          | spray       | wave or foam    |
| Flux type & % solids ?                                                | _____       | % Solids: _____ |
| Cleaning system ?                                                     | Clean       | No clean        |
| Flux used (per wk, per machine) ?                                     | _____       |                 |
| Flux unit cost ?                                                      | _____       |                 |
| Solder alloy type ?                                                   | Sn/PB       | PB-Free         |
| Dross production (/ hour, /machine) ?                                 | _____       |                 |
| Cost of solder ?                                                      | _____       |                 |
| Resale price of dross ?                                               | _____       |                 |
| Pot cleaning time (/ week, /machine) ?                                | _____       |                 |
| Total rework time (for wave)(/ week, / wave soldering) ?              |             | _____           |
| Do you have any particular quality problems ?                         |             | _____           |
| What would be your objective with N2 wave soldering ?                 |             | _____           |
| Would your be interested in retrofitting any of your waves machines ? |             | _____           |

## Reflow Soldering

(Please submit all info if a cost-vs.-benefit analysis is requested for your reflow soldering process)

|                                                         |       |          |
|---------------------------------------------------------|-------|----------|
| Working hours (hours/week) ?                            | _____ |          |
| Number of reflow at your facility?                      | _____ |          |
| Brand & Model ?                                         | _____ |          |
| Are your ovens N2 Ready ?                               | _____ |          |
| Are your ovens N2 Capable ?                             | _____ |          |
| Is N2 used now in reflow ?                              | _____ |          |
| What paste do you use ?                                 | _____ |          |
| Flux Vehicle ?:                                         | _____ |          |
| Cleaning Process ?:                                     | Clean | No clean |
| Total reflow rework time (/ week, / reflow) ?           |       | _____    |
| Do you have any particular quality problems?            |       | _____    |
| What would be your objective with N2 reflow soldering ? |       | _____    |