# ZiP-AMP datasheet

## Use case

ZiP-AMP reactions are Loop Mediated DNA Amplification (LAMP) based reactions that can be used for detection of nucleic acid sequences in biological samples for human health, animal health and environmental testing applications. The reactions ship as a pair of lyophilised beads. Optional intercalating dye beads, reverse transcriptase beads and customised primer beads are also available.

## Pack contents

| | |
|---|---|
| 100 | ZiP-AMP polymerase beads |
| 100 | dNTP beads |
| 150mL | Lysis buffer |
| 150mL | Dilution buffer |

Pack typically supplied with 3% over as spare materials


Figure 1: ZiP-AMP pack contents

## Typical reaction contents

There are three basic configurations of reaction contents:

| a | b | c |
|---|---|---|
| Primers and intercalating dye lyophilised as beads | Primers and detection chemistry lyophilised as a cake | Primers and detection chemistry added as wet reagents |

Figure 2: typical reaction contents with primers and intercalating dye lyophilised as beads in a typical 200µL PCR tube

## Typical use example

Prepare 100µL reactions:

1. Add 1 ZiP-AMP bead and 1 dNTP bead to each reaction tube
2. Add your own primers and detection chemistry to reaction tubes; 25µL or less if adding wet reagents (reaction volume is increased to 125µL)

Run reactions:

1. Prepare individual lysis buffer volumes of 1mL. Optionally heat lysis buffer between room temperature and 95°C.
2. Add samples under test to lysis buffer volumes. Wait 2-5 minutes for lysis.
3. Dilute 100µL lysate in 900µL dilution buffer
4. Transfer 100µL diluent into each reaction tube
5. Place reaction tubes in instrument or heat block at 65°C
6. Allow reactions to run for up to 30 minutes

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## Suggested reaction conditions and equipment

| | |
|---|---|
| Recommended lysis volume: | 1mL |
| Lysis temperature: | Room temp to 95°C |
| Reaction temperature: | 65°C |
| Example instruments: | T8 and T16, see Example instruments section below |

## Bead specifications

| | |
|---|---|
| Typical bead diameter: | 2mm +/- 0.2mm |

## Bead handling advice

Handle beads in an antistatic environment. Beads are susceptible to sticking to surfaces with static charges.
Zip recommends beads be placed on an antistatic plastic tray when not in glass container.
Metal tweezers are recommended for handling.
Minimise compression of beads during handling to avoid crushing.

## Optional reagents and accessories available

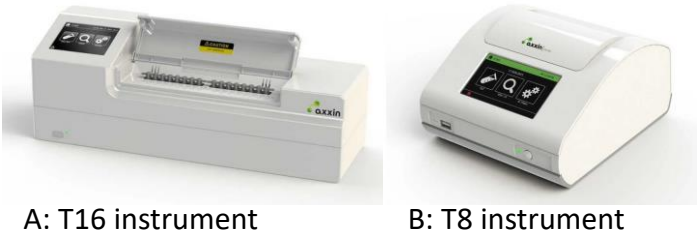
| | Part number | Pack size |
|---|---|---|
| Intercalating dye beads<br>Operates on instrument “HEX” channel | P003086 | 100 |
| Reverse transcriptase beads | P003019 | 100 |
| Customised primer/probe beads | NA | 100 |
| Magnetic mixing beads | P002728 | 1000 |

## Example instruments

ZiP-AMP assays are proven to run on the Axxin T8 and T16 instruments.
Axxin instruments support assay development functions including:

- High sensitivity, two or three channels of fluorescence (FAM, HEX and ROX available)
- Magnetic mixing function to support ZiP-AMP reaction mixing beads
- Desktop support application for assay design, test result algorithm, and test method definition and reporting
- Capability to deploy in the field

Contact: sales@axxin.com | www.axxin.com



A: T16 instrument B: T8 instrument
Figure 3: Axxin instruments

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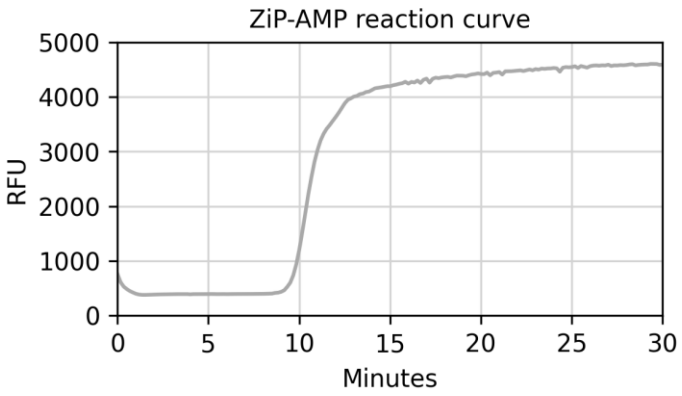
## Test read out

ZiP-AMP is typically used with intercalating dye for a single channel per tube test or with fluorescent beacons. ZiP supply a customised intercalating dye as a lyophilised bead configured to operate with a ZiP-AMP reaction.

The intercalating dye increases fluorescence as DNA amplification progresses and can be used with either real time or end point detection to determine a test result.
Fluorescent beacons are available commercially and will typically be configured to work with application specific primers. Florescent beacons have the potential advantages of increased sensitivity and multiplexing of assays in a single tube.

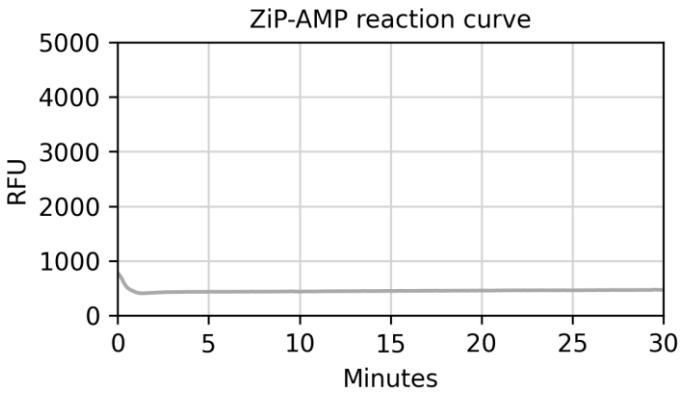
## Example reaction curves and times

Positive reaction




A ZiP-AMP reaction positive result can typically be called between 10 and 15 minutes

Negative reaction




To run a ZiP-AMP reaction to completion to determine a negative result will typically take between 20 and 30 minutes

## ZiP-AMP quality contract

ZiP-AMP reagents can be supplied under quality contract for use in regulated human health, animal health and food safety applications.
Contact ZiP Diagnostics for ordering.

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