

## **Low-risk road marking under consideration of environmental protection and industrial safety aspects**

### **HOFMANN internal mixing ratio 98:2 vs. external mixture**

The internal mixture of the HOFMANN pump system complies precisely with the set mixing ratio. An even and complete mixture of the A and B components can be ensured this way. Only this way can the material properties promised by the material manufacturer be achieved.

- For the external mixture, the mixing ratio may fluctuate, since a precise hardener volume is hard to adjust (air atomization) and neither can it be ensured that the hardener is placed 100 % in the applied line. Part of the sprayed hardener (peroxide) will enter the environment (= environmental stress).
- External mixture cannot ensure even and complete mixture of A and B components. This may influence material properties (e.g. the wear properties).

Additionally, external mixture would pose the risk that the mixture of hardener and air would be inhaled by the operators (industrial safety).

### **Environmental protection aspects – HOFMANN internal mixture procedure 98:2 Airless**

- Low material consumption of A + B components, since only max. 150 ml material components are permanently mixed; mixture of the A + B component only takes place at the very end of the entire system setup, so that the cleaning effort reduces to the absolute minimum. Subsequently, much less solvent is needed for cleaning than in the conventional 2-component systems.
- The HOFMANN principle of dosage and transport of the A + B components in system setup for sprayable 2-component cold plastics at a mixing ratio of 98:2 Airless is based on the internal mixing procedure. This means that transport through pump systems and mixture of both components takes place completely isolated without the operating staff getting in contact with the materials. The completely mixed sprayable cold plastic material is applied to the road surface with a high-pressure method in a concentrated spraying jet; this barely produces any spraying mist (depending on marking material type) that would put a strain on the environment and the operating staff.

- Precise dosage of A+B components with pump systems specifically developed for this that transport and dose separately at a ratio of 98 percent by volume (primary component A) to 2 percent by volume (hardener component = organic peroxide B) prevents unnecessary and wasteful use of hazardous substances, does not require guesswork when mixing, but always permits precise dosages; this has a lesser effect on the environment.

### **Industrial safety aspects – HOFMANN internal mixture procedure 98:2 Airless**

- The HOFMANN principle of dosage and transport of the A + B components in system setup for sprayable 2-component cold plastics at a mixing ratio of 98:2 Airless is based on the internal mixing procedure. This means that transport through pump systems and mixture of both components takes place completely isolated without the operating staff getting in contact with the materials. The completely mixed sprayable cold plastic material is applied to the road surface with a high-pressure method in a concentrated spraying jet; this barely produces any spraying mist (depending on marking material type) that would put a strain on the environment and the operating staff.
- The internal mixing procedure 98:2 Airless developed by HOFMANN uses only liquid components A + B. Conventional systems often use a hardener powder (component B); fine hardener dust often escapes when opening/tearing the powder bags, which puts a stress on the operator's lungs; the HOFMANN internal mixing procedure with liquid components avoids contact between the operators and organic peroxide. The peroxide is also closed air-tight in a separate container on the machine; the peroxide is transported only through a dosing pump system.
- For the external mixing procedure (jet-in-jet), you cannot set or measure a defined quantity of the B component = organic peroxide; this causes an unnecessary consumption of peroxide and thus an increased environmental stress.
- Reduced setting/adjustment requirements of the HOFMANN internal mixing system during the marking job, e.g. adjustment of the line widths; with the external mixing procedure, the two nozzles and paint spraying guns respectively must be permanently readjusted in order to react to changing marking speeds and thus changing line widths, i.e. the machine operator must leave the driver's platform and climb down from the marking machine several times per day, thereby risking a readjustment of the external mixing system in moving traffic.
- With the continuous precise dosing of the A+B component used in the internal mixing procedure, the master component and the hardener component are always mixed homogeneously, at the same time excluding the introduction of e.g. air (air oxygen); thus the odor development is reduced to a minimum, and the machine operator breathes less contaminated air since the air contains hardly any peroxide.

- With the internal mixing procedure, the A+B components are mixed with a static mixer in a 98:2 ratio using a high-pressure spray application, i.e. at a pressure of about 90 to 120 bar; thus weather influences such as wind and air turbulences due to passing traffic cannot influence the spray fan, and the machine operator does not inadvertently come into contact with the mixed material. With the external mixing procedure, the weather and air turbulences from passing traffic exert an extremely strong and negative influence on
  - a. the mixing of the A+B component
  - b. the stabilization of the spray fan

**HOFMANN GmbH**