



Australian Pesticides &
Veterinary Medicines Authority

Product Name: Sledge Herbicide

APVMA Approval No: 83053/148193

Label Name:	Sledge Herbicide
Signal Headings:	CAUTION KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING
Constituent Statements:	ACTIVE CONSTITUENT: 25 g/L PYRAFLUFEN-ETHYL SOLVENTS: 102 g/L N-METHYL-2-PYRROLIDONE 756 g/L LIQUID HYDROCARBON
Mode of Action:	GROUP 14 HERBICIDE
Statement of Claims:	For improvement in the brownout of a range of broadleaf and grass weeds, the reduction of seed-set and viability of weed seeds prior to harvest of wheat, barley, field pea, faba bean, chickpea, lentil, narrow leaf lupin, the control of volunteer cotton and for the defoliation and acceleration of boll opening in cotton as per the Directions for Use table.
Net Contents:	1L-20L
Restraints:	This section contains file attachment.
Directions for Use:	This section contains file attachment.

Other Limitations:	
Withholding Periods:	<p>Harvest</p> <p>Cotton: DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION.</p> <p>Wheat and Barley: NOT REQUIRED WHEN USED AS DIRECTED</p> <p>Pulse crops: DO NOT HARVEST GRAIN FOR 7 DAYS AFTER APPLICATION</p> <p>Grazing</p> <p>Cotton: DO NOT FEED, OR ALLOW TREATED COTTON TRASH OR STUBBLE TO BE FED TO LIVESTOCK.</p> <p>All other situations: DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 7 DAYS AFTER APPLICATION.</p>
Trade Advice:	
General Instructions:	This section contains file attachment.
Resistance Warning:	<p>GROUP 14 HERBICIDE</p> <p>SLEDGE Herbicide is a member of the phenylpyrazole group of herbicides. Its mode of action is through a process of membrane disruption, which is initiated by the inhibition of the enzyme protoporphyrinogen oxidase. This inhibition interferes with the chlorophyll biosynthetic pathway. For weed resistance management, SLEDGE Herbicide is a Group 14 herbicide. Some naturally occurring weed biotypes resistant to SLEDGE Herbicide and other herbicides that inhibit the enzyme protoporphyrinogen oxidase may exist through normal genetic variability in any weed population and increase if these herbicides are used repeatedly. These resistant weeds will not be controlled by SLEDGE Herbicide or other herbicides that inhibit the enzyme protoporphyrinogen oxidase. Since the occurrence of resistant weeds is difficult to detect prior to use, Sipcam Pacific Australia Pty Ltd accepts no liability for any losses that may result from the failure of SLEDGE Herbicide or other herbicides that inhibit the enzyme protoporphyrinogen oxidase. For Resistance Management there is currently a CropLife Resistance Management Strategy for Group 14 herbicides. https://www.croplife.org.au/resources/programs/resistance-management/specific-guidelines-for-group-14-herbicides/</p>
Precautions:	<p>PRECAUTIONS</p> <p>When using together with other products, consult their label safety directions.</p> <p>Re-entry period</p> <p>DO NOT enter treated areas until spray has dried. If prior entry is necessary, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical resistant gloves. Clothing must be laundered after each day's use.</p>
Protections:	<p>PROTECTION OF CROPS, NATIVE AND OTHER NON TARGET PLANTS</p> <p>For SLEDGE + thidiazuron tank mix, observe the following additional constraints:</p> <p>DO NOT allow spray drift to contact trees or crops other than cotton, as this product may injure or defoliate other crops, particularly citrus, grapevines and lettuce.</p> <p>To help reduce drift damage potential:</p> <p>DO NOT apply by air when citrus in flush is within 8 km downwind from the point of application.</p> <p>DO NOT apply by air when within 800m of lettuce.</p>

	<p>DO NOT plant lettuce or carrots in cotton fields where SLEDGE + thidiazuron tank mix has been applied within the previous 9 months.</p> <p>DO NOT plant legumes, lucerne, other root crops or leafy vegetables (besides those noted above in cotton fields where SLEDGE + thidiazuron tank mix has been applied within the previous two months.</p> <p>DO NOT plant small grains, sorghum or corn in cotton fields where SLEDGE + thidiazuron tank mix has been applied within the previous two weeks.</p> <p>Sledge Herbicide does not provide residual activity; therefore no crop rotational restrictions apply. However, when tank-mixing with other products, including Sylon® 750 SG Herbicide or metsulfuron-methyl products, observe warnings and recommendations on the labels of such products.</p> <p>PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT</p> <p>Very toxic to aquatic life. DO NOT contaminate streams, rivers or watercourses with the chemical or used containers.</p>
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Storage and Disposal:	<p>Store in the closed, original container in a cool, well ventilated area. Do NOT store for prolonged periods in direct sunlight. Triple rinse containers before disposal. Add rinsings to the spray tank. Do NOT dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. Do NOT burn empty containers or product.</p>
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Safety Directions:	<p>Harmful if inhaled. Will damage eyes. Will irritate the skin. Avoid contact with eyes and skin. Do not inhale spray mist. If product on skin, immediately wash area with soap and water. When using together with other products, consult their label safety directions. When opening the container and preparing the spray, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and a washable hat, elbow-length chemical resistant gloves and face shield or goggles. Wash hands after use. After each day's use, wash gloves, face shield or goggles and contaminated clothing.</p>
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First Aid Instructions:	<p>If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26. If swallowed, do NOT induce vomiting. If in eyes wash out immediately with water.</p>
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First Aid Warnings:	
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RESTRAINTS:

DO NOT apply if rain is expected within 2 hours.

DO NOT apply by a vertical sprayer

DO NOT apply to wheat and barley after BBCH83

For PROFESSIONAL use only

SPRAY DRIFT RESTRAINTS

Specific definitions for terms used in this section of the label can be found at apvma.gov.au/spraydrift. **DO NOT** allow bystanders to come into contact with the spray cloud.

DO NOT apply in a manner that may cause an unacceptable impact to native vegetation, agricultural crops, landscaped gardens and aquaculture production, or cause contamination of plant or livestock commodities, outside the application site from spray drift. The buffer zones in the relevant buffer zone tables below provide guidance but may not be sufficient in all situations. Wherever possible, correctly use application equipment designed to reduce spray drift and apply when the wind direction is away from these sensitive areas.

DO NOT apply unless the wind speed is between three and 20 kilometres per hour at the application site during the time of application.

DO NOT apply if there are hazardous surface temperature inversion conditions present at the application site during the time of application. Surface temperature inversion conditions exist most evenings one to two hours before sunset and persist until one to two hours after sunrise.

DO NOT apply by a boom sprayer unless the following requirements are met:

- spray droplets are not smaller than a MEDIUM spray droplet size category
- minimum distances between the application site and downwind sensitive areas are observed (see 'Mandatory buffer zones' section of the following table titled "Buffer zones for boom sprayers").

Buffer zones for boom sprayers

Situation	Boom height above the target canopy	Mandatory downwind buffer zones	
		Natural aquatic areas	Vegetation areas
Sledge Herbicide up to 400 mL/ha	0.5 m or lower	5 metres	20 metres
	1.0 m or lower	30 metres	60 metres
Sledge Herbicide up to 200 mL/ha	0.5 m or lower	0 metres	10 metres
	1.0 m or lower	15 metres	40 metres
Tank mix with ethephon	0.5 m or lower	0 metres	20 metres
	1.0 m or lower	15 metres	60 metres
Tank mix with glyphosate prior to sowing or starting a fallow	0.5 m or lower	0 metres	110 metres
	1.0 m or lower	15 metres	350 metres
Tank mix with glyphosate in pulses	0.5 m or lower	0 metres	80 metres
	1.0 m or lower	15 metres	240 metres
Tank mix with paraquat prior to sowing or starting a fallow	0.5 m or lower	25 metres	140 metres
	DO NOT apply at boom heights exceeding 0.5 m above the target canopy		
Tank mix with paraquat in pulses	0.5 m or lower	10 metres	50 metres
	1.0 m or lower	30 metres	140 metres

DO NOT apply by aircraft unless the following requirements are met:

- Spray droplets are not smaller than a MEDIUM spray droplet size category.
- For maximum release height above the target canopy of 3 metres or 25 per cent of wingspan or 25 per cent of rotor diameter, whichever is the greatest, minimum distances between the application site and downwind sensitive areas are observed (see 'Mandatory buffer zones' section of the following table titled 'Buffer zones for aircraft')

Buffer zones for aircraft

Situation	Type of aircraft	Mandatory downwind buffer zones	
		Natural aquatic areas	Vegetation areas
Sledge Herbicide up to 400 mL/ha	Fixed-wing	110 metres	275 metres
	Helicopter	85 metres	180 metres
Sledge Herbicide up to 200 mL/ha	Fixed-wing	65 metres	160 metres
	Helicopter	55 metres	120 metres
Tank mix with ethephon	Fixed-wing	65 metres	275 metres
	Helicopter	55 metres	180 metres
Tank mix with glyphosate prior to sowing or starting a fallow	DO NOT apply by aircraft		
Tank mix with glyphosate in pulses	DO NOT apply by fixed-wing aircraft		
	Helicopter	55 meters	700 metres
Tank mix with paraquat prior to sowing or starting a fallow	DO NOT apply by aircraft		
Tank mix with paraquat in pulses	DO NOT apply by aircraft		

Specific Spray Drift Restraints for tank mix of thidiazuron with SLEDGE:

DO NOT apply by a boom sprayer unless the following requirements are met:

- spray droplets are not smaller than a COARSE spray droplet size category
- minimum distances between the application site and downwind sensitive areas are observed (see the following section titled 'Buffer zones for tank mix of thidiazuron with SLEDGE').

DO NOT apply by aircraft unless the following requirements are met:

- Spray droplets are not smaller than a COARSE spray droplet size category.
- For maximum release height above the target canopy of 3 metres or 25 per cent of wingspan or 25 per cent of rotor diameter, whichever is the greatest, minimum distances between the application site and downwind sensitive areas are observed (see the following section titled 'Buffer zones for tank mix of thidiazuron with SLEDGE').

BUFFER ZONES for tank mix of thidiazuron with SLEDGE: DO NOT apply if there are sensitive crops, gardens, landscaping vegetation, protected native vegetation or protected animal habitat downwind from the application area and within the mandatory buffer zones shown in the table below.

For aerial application

Wind speed range at time of application	Mandatory downwind buffer zones	
	Fixed-wing	Helicopter
from 3 to 8 kilometres per hour	200 metres	120 metres
from 8 to 14 kilometres per hour	250 metres	180 metres
from 14 to 20 kilometres per hour	300 metres	180 metres

For ground application

Wind speed range at time of application	Mandatory downwind buffer zones
from 3 to 20 kilometres per hour	20 metres

Directions for Use

Crop/ Situation	Weeds Controlled	Rate/ha	Critical Comments
Prior to sowing winter crops or starting a winter fallow	Annual ryegrass Barley grass Caltrop Canola Capeweed Deadnettle Dwarf amaranth Erodium/Storksbill Fat hen Heliotrope (common / blue / potato weed) Lesser loosestrife Marshmallow Oats Prickly lettuce Sow thistle (milk thistle) Subterranean clover Tree hogweed (<i>Polygonum patulum</i>) Veronica (<i>Veronica</i> sp.) Wild Radish Wireweed/Hogweed	50-100 mL plus recommended label rate of Raze or other glyphosate product OR plus recommended label rate of Inferno or other paraquat product	Use the higher rate of SLEDGE on larger weeds and for faster brown-out. Refer to the Raze or Inferno product label and select a rate of glyphosate or paraquat suitable for the conditions and weed size in each situation. Apply to actively growing weeds at the 2-6 leaf stage. Visible symptoms of brownout will take 2-7 days to develop Application to old, hardened or stressed weeds and in harsh environmental conditions such as high temperatures and low soil moisture may not result in adequate control. To ensure uptake of SLEDGE do not sow crops for at least 1 hour after application. Always refer to the appropriate companion product label in case a longer re-crop sowing period is required. On summer fallows, the addition of an adjuvant such as HOTUP# or HASTEN# may improve results. Refer to the adjuvant label for rates and mixing instructions.
Prior to sowing summer crops or starting a summer fallow	Any of the weeds listed above plus:- Afghan melon (<i>Citrullus lanatus</i>) Prickly paddy melon (<i>Cucumis myriocarpus</i>)	80-160 mL plus recommended label rate of Raze or other glyphosate product OR plus recommended label rate of Inferno or other paraquat product	
	Volunteer cotton (including Roundup Ready cotton)		Application to old, hardened or stressed weeds and in harsh environmental conditions such as high temperatures and low soil moisture may not result in adequate control. To ensure uptake of SLEDGE do not sow crops for at least 1 hour after application. Always refer to the appropriate companion product label in case a longer re-crop sowing period is required. Apply by ground rig only. Good spray coverage is essential.
		100mL + 1.5L Inferno or other paraquat product	Apply to cotton from seedling to the 10 leaf stage
		100-200 mL + 2L DC Tron Cotton OR 1L Hasten	Use when targeting volunteer cotton seedlings up to the 4 leaf growth stage. Use the higher rate for larger cotton plants or when the target population is high.
		200-400 mL + 2L DC Tron Cotton OR 1L Hasten	Use when targeting weeds from the 5 – 8 leaf stage, or when the targeted population is high.

Crop/ Situation	Use	Rate/ha	Critical Comments
Pre-harvest application in Wheat and Barley	For the reduction of seed set and viability of weed seeds including Indian hedge mustard (<i>Sisymbrium orientale</i>), Sowthistle/ Milk thistle (<i>Sonchus oleraceus</i>), Prickly lettuce (<i>Lactuca serriola</i>), Turnip weed (<i>Rapistrum rugosum</i>), Wild Radish (<i>Raphanus raphanistrum</i>)	200mL	Aim to spray weeds at full flower but not before crop growth stage Z71 (BBCH 71) – watery ripe, when first grains have reached half their final size. If regrowth & flowering occurs a second application of 200 mL/ha may be applied. This should be at least 14 days after the first application.
Pre-harvest application in chickpea, faba bean, field pea, lentil and lupin (narrow leaf only)	To improve harvest efficiency and for the reduction of seed-set and viability of weed seeds including- Indian hedge mustard (<i>Sisymbrium orientale</i>), Sowthistle/ Milk thistle (<i>Sonchus oleraceus</i>), Prickly lettuce (<i>Lactuca serriola</i>), Turnip weed (<i>Rapistrum rugosum</i>), Wild Radish (<i>Raphanus raphanistrum</i>)	200mL	Aim to spray weeds at full flower. The crop should have at least reached the minimum level of maturity specified for each crop but no less than 7 days before harvest. Refer to the CROP SAFETY section of this label for the minimum stage of maturity for each crop.
	The addition of Sledge to paraquat or glyphosate may improve weed control and reduction of seed set and viability of weed seeds, as listed above. May also assist with harvest efficiency.	200mL plus recommended label rate of Raze or other glyphosate product (except lupin) OR 200mL plus recommended label rate of Inferno or other paraquat Product	Aim to spray weeds at full flower for maximum seed set reduction. Refer to the relevant sections of the Raze or Inferno product label to establish the minimum stage of maturity for each crop and application rate. Do not apply less than 7 days before harvest.

Crop/ Situation	Use	Rate/ha	Critical Comments
Cotton	For defoliation and acceleration of boll opening	40 - 80mL plus label rate of ethephon plus label rate of D-C-TRON Cotton, Canopy Insecticide or Hasten	<p>Always apply as a tank mixture with ethephon and D-C-TRON Cotton, Canopy Insecticide or HASTEN. Use the lower rate of Sledge for smaller crops. Refer to the label for application rates of ethephon and adjuvants.</p> <p>Apply when the last harvestable boll is physiologically mature. For the best results use sufficient spray volume to achieve thorough and uniform coverage of leaves and bolls. A follow-up application of Sledge and/or boll opener may be required for complete defoliation and boll opening. Leaf desiccation may be observed during the defoliation process. Some desiccated leaves may be retained. For improved defoliation, Sledge can also be tank-mixed with thidiazuron. See the COMPATIBILITY section of the label below.</p>

**NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL
UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.**

GENERAL INSTRUCTIONS

Before opening, carefully read Directions for Use, Precautionary Statements, Safety Directions and First Aid Instructions.

CROP SAFETY

Cotton Defoliation: When applied as a foliar spray to cotton pre-harvest, Sledge provides fast, effective defoliation of cotton plants. Adequate defoliation is generally achieved within 7 to 14 days dependent on weather and crop conditions. Apply Sledge when the last harvestable boll is physiologically mature. Defoliation of crops with moderate to high levels of nitrogen remaining in the soil are more prone to leaf freezing than crops that have depleted soil nitrogen.

DO NOT apply SLEDGE under cold conditions when mixed with thidiazuron (night temperatures below 12°C and/or mean day/night temperatures below 18°C).

Pre-Harvest Wheat and Barley:

Aim to spray weeds at full flower but not before growth stage Z71 of the crop— watery ripe, when first grains have reached half their final size. If regrowth and flowering occurs, a second application may be necessary to provide satisfactory reduction in viable seed numbers after harvest.

Pre-Harvest chickpea, faba bean, field pea, lentil & lupin (narrow leaf only):

The crop should have at least reached the minimum level of maturity specified for each crop but no less than 7 days before harvest. The minimum level of maturity specified for each crop is given below.

Chickpea: Apply at or after 90–95% of the chickpea seeds have reached physiological maturity. Typically when 80-85% of pods within crop have turned yellow-brown.

Faba bean: Apply at or after hilum turns black in the pods at the top of the canopy. Typically when 30- 80% of pods ripe and dark. The plant may still be green at this stage, particularly if it is a late maturing variety.

Field pea: Apply at or after seed moisture is less than 30%. Typically when the lower 75% of pods are brown with firm seeds and leathery pods.

Lentil: Apply at or after the crop starts to yellow (senesce), typically less than 15% green pods.

Lupin: (narrow leaf only): Apply at or after 80% leaf drop. Application prior to windrowing will result in severe loss of grain yield. Not to be used with glyphosate.

Sledge may also be added to paraquat or glyphosate to improve weed control and avoid uneven maturity, improve speed of maturity, reduce broadleaf weed biomass and increase harvest efficiency. Refer to the relevant sections of the Raze or Inferno product label to establish the minimum stage of maturity for each crop and application rate.

In all cases, the application of Sledge before the designated maturity stage may cause yield reductions. Seed quality may also be adversely affected. Application to crops intended for seed production or for sprouting may result in germination percentages less than commercially acceptable.

Fallow Weed Control: The addition of SLEDGE to Raze (or other glyphosate products) or Inferno (or other paraquat products) may increase the rate of brownout and final control, when compared to the use of the glyphosate or paraquat products alone. Refer to the product label for Raze (or other glyphosate product) or Inferno (or other paraquat product) and select a rate suitable for the conditions and weed size in fallow situations.

Sledge may be used to control volunteer cotton seedlings, including Roundup Ready (glyphosate tolerant) varieties. Sledge may be used alone with Hasten or DC Tron Cotton, applied up to the 8-10 leaf growth stage. Ensure thorough coverage is achieved. Sledge may also be used with Inferno or other paraquat products to provide control of other weeds present. Best results are achieved when cotton volunteers are actively growing. Avoid application when volunteer cotton seedlings are moisture stressed. Sledge Herbicide does not provide residual activity, therefore no crop rotational restrictions apply. However, when tank-mixing with other products, including Sylon®750SG Herbicide or metsulfuron-methyl products, observe warnings and recommendations on the labels of such products.

MIXING

Cotton Defoliation: Half fill the spray tank with good quality water and begin agitation. While agitating, add the required volume of ethephon and thidiazuron (if applicable) product then the required volume of Sledge, followed by the D-C-TRON, CANOPY or HASTEN and the remaining water. Prepare only enough spray solution for immediate use and do NOT stand overnight. If tank mixtures are prepared, maintain good agitation and use promptly.

All other situations: Half fill the spray tank with good quality water and begin agitation. While agitating, add the required volume of SLEDGE. If required, add Raze (or other glyphosate product) or Inferno (or other paraquat product) followed by the remaining water. Always add adjuvants and oils last. In all situations, prepare only enough spray solution for immediate use and do NOT stand overnight. If tank mixtures are prepared, maintain good agitation and use promptly.

APPLICATION

Broadcast Ground Application: Boom sprayers must be fitted with mechanical or bypass agitation. Sledge works by contact action hence thorough and uniform coverage is essential. Use sufficient water and configure the boom sprayer to optimize coverage. Apply in 80 to 150L water per hectare. Higher water volumes may improve results if the weeds are very small by increasing the number of droplets per square cm. Higher water volumes may improve coverage and hence control of larger weeds. Do not use low-drift, air induction or flood-jet nozzles. For pre-harvest applications, a minimum of 100L/ha is recommended. When tank-mixing with Raze or other glyphosate formulation OR Inferno or other paraquat formulation, observe the most restrictive directions on the respective labels.

Optical Spot Spray Application in fallow situations

Calibrate the sprayer to spray the equivalent of 100L water per hectare. Use optical spray application when weed cover is between 0 and 30% of the paddock. If percentage weed cover exceeds 30% refer to the broadcast ground application.

Aerial Application: Apply by aircraft in at least 40L water per hectare. Ensure thorough coverage. DO NOT apply by aircraft with spray droplets smaller than a MEDIUM spray droplet size category. Apply a coarse spray droplet size category when mixing with thidiazuron for use on cotton.

Ethephon in cotton

Refer to the label for application rates. Use higher rates of ethephon when the crop canopy is denser and for greater enhancement of boll opening. A follow-up application of Sledge and/or boll opener may be required for complete defoliation and boll opening. Observe all directions, precautions and limitations on any product tank-mixed with Sledge.

Thidiazuron in cotton

Apply with Sledge in a tank mix with ethephon and adjuvant. Refer to the thidiazuron label for application rates. Apply when the last harvestable boll is physiologically mature. Observe all directions, precautions and limitations on any product tank-mixed with Sledge.

Adjuvants

Sledge is compatible with the adjuvants Hasten Spray Adjuvant, Hot-Up, Canopy Insecticide, and D-C-TRON* Cotton spray oil. Refer to the adjuvant label for application rates. Observe all directions, precautions and limitations on any product tank-mixed with Sledge.

EQUIPMENT CLEANING

Do NOT allow the spray solution to dry in the application equipment. After application and before using the sprayer equipment for any other applications, the sprayer must be thoroughly cleaned. Applicators must ensure proper equipment clean-out for any other products mixed with **SLEDGE Herbicide** as provided on the other product label(s). Immediately following application, clean all equipment thoroughly with detergent or a spray tank cleaner and water as described below. Should residues of **SLEDGE Herbicide** remain in inadequately cleaned equipment, they may be released in subsequent applications and cause injury to crops.

1. Drain sprayer tank, hoses, and spray boom and thoroughly rinse with clean water the inside of the spray tank, sprayer hoses, boom, and nozzles to remove any sediment or residues.
2. Fill the tank with clean water; add an alkaline detergent or boom cleaner (follow manufacturer's directions for use). Fill tank and operate the sprayer with agitation for 15 minutes to flush hoses, boom and nozzles.
3. Drain the sprayer tank, lines, and booms. Rinse the tank with clean water and flush through the hoses, boom and nozzles. Remove and clean spray nozzles, tips and screens.
4. Dispose of all cleaning solutions, rinsate and wash waters in accordance with Federal, state and local regulations.