SUPRA PERFECTA

FOOD APPLICATIONS

Hypochlorous acid for fresh produce, protein, processing and shelf-life extension



ACTIVATED BY SPT95
THE PROVEN STANDARD

Supra Perfecta Technologies Ltd | Rotherham, United Kingdom | www.supraperfecta.com

A solution made naturally by the body to fight infection

HYPOCHLOROUS ACID

Recognised by the medical profession for over 100 years.

The most powerful naturally occurring biocide known to man

Yet completely non-irritant and non-toxic.

Produced naturally by the human immune system as the body's own defence against bacterial, viral and fungal infection.

Now stably manufactured at scale

Used at low ppm to remove bacteria from foods, significantly extending shelf life and improving produce quality.

No taste. No taint. No residue.

A nature-replicating stable hypochlorous solution

SPT95 FOR FOOD PRESERVATION

Bactericidal | **Virucidal** | **Fungicidal** | **Sporicidal**

99.9999%	<60 sec	Non-toxic
Pathogen reduction	Contact kill time	Safe for humans and produce

New levels of effectiveness against all known pathogens, reducing food degradation without any taint.

The post-harvest opportunity

MARKET OPPORTUNITY

20–40%

of fresh produce lost after harvest in developing markets

€4.8bn

annual EU fruit losses to post-harvest decay

$25bn+

US spend on harvest and post-harvest chemicals

Global post-harvest losses reach an estimated 1.3 billion tonnes each year, much of it preventable. SPT95 controls decay at source, without toxic residues, MRL exposure or end-of-day disposal burden.

A safer alternative to conventional post-harvest chemicals

REGULATORY ADVANTAGE



No residue burden

Breaks down to salt and water, supporting zero-residue and low-MRL programmes.

Safer to handle

Non-irritant in normal use, with no special handling or disposal protocol at the packhouse.

Cleaner disposal

No accumulation of toxic wash-water requiring controlled disposal at end of day.

Royal Agricultural College, Cirencester

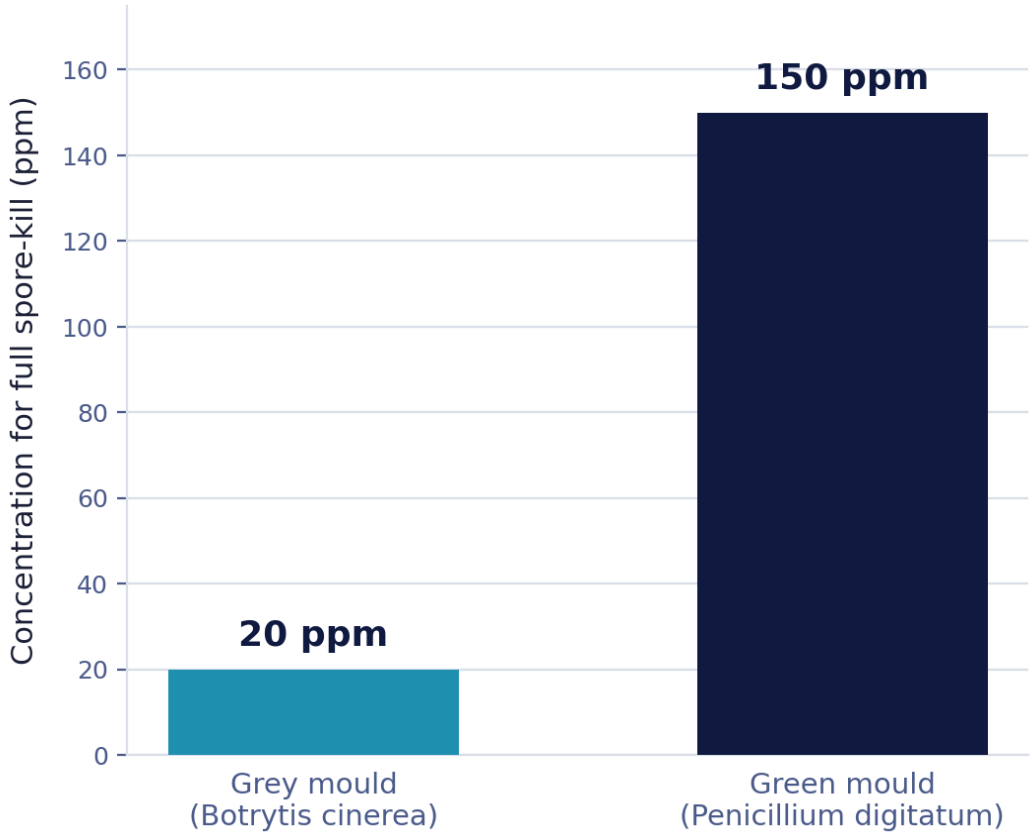
FOOD PROCESSING RESEARCH

> *SPT95 has been found to be highly effective in removing surface micro-organisms in a wide range of fresh produce.*
>
> *Significantly higher levels of decontamination can be achieved on vegetable and other plant tissue surfaces than with equivalent available free chlorine concentrations of hypochlorite.*

Dr Hugh Martin, BSc (London), MSc (Imperial), PhD (London), DIC
Royal Agricultural College, Cirencester

Proven kill of the moulds that spoil fresh produce

LABORATORY EVIDENCE



In vitro studies, Dr Samir Droby, ARO The Volcani Centre.

Grey mould control

Botrytis cinerea spore germination fully inhibited at 20 ppm.

Green mould control

Penicillium digitatum spore germination fungicidal at 100 to 150 ppm.

Surface decontamination

Three-fold reduction in viable spores on citrus surface after a short SPT95 dip.

Seed priming

PRE-HARVEST APPLICATION

Used as a priming agent, SPT95 improves germination performance and adds built-in seed disinfection.

Faster germination

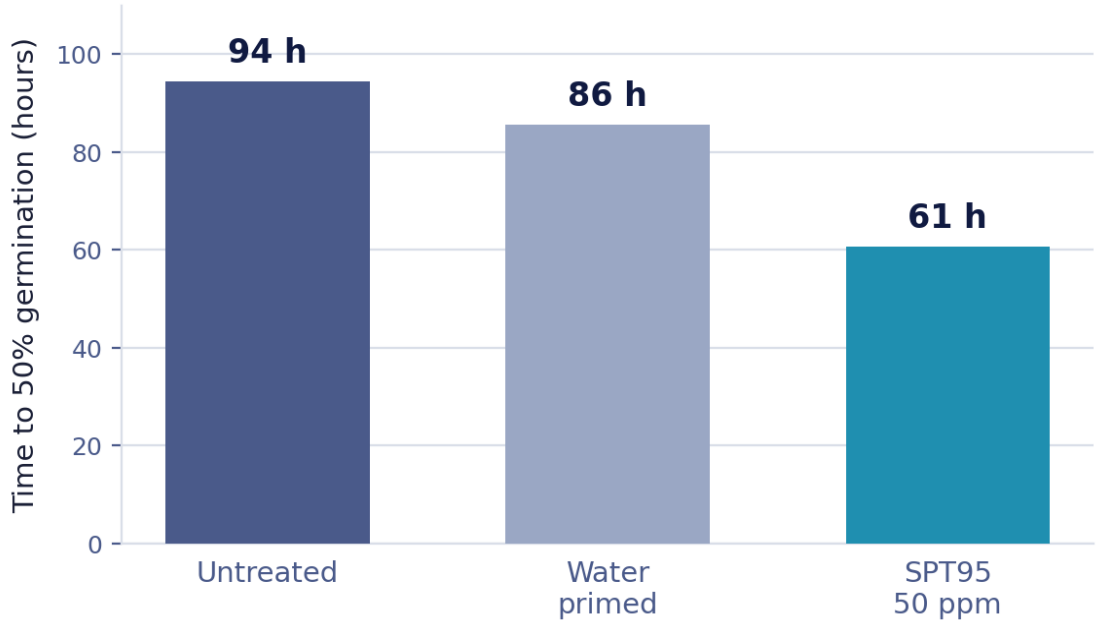
Carrot seed primed at 50 ppm reached 50% germination far sooner than water-primed seed.

Stronger seedlings

Greater seedling length at 14 days, a statistically significant improvement.

Built-in disinfection

Onion seed tolerant to 300 ppm, enabling priming with simultaneous decontamination.

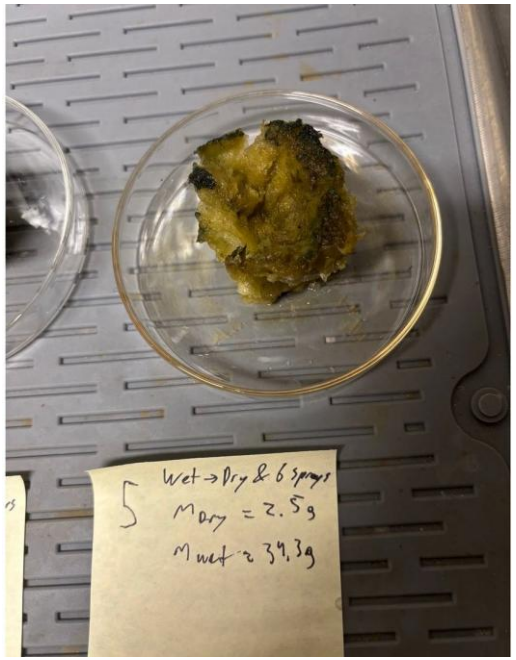


From seed to store

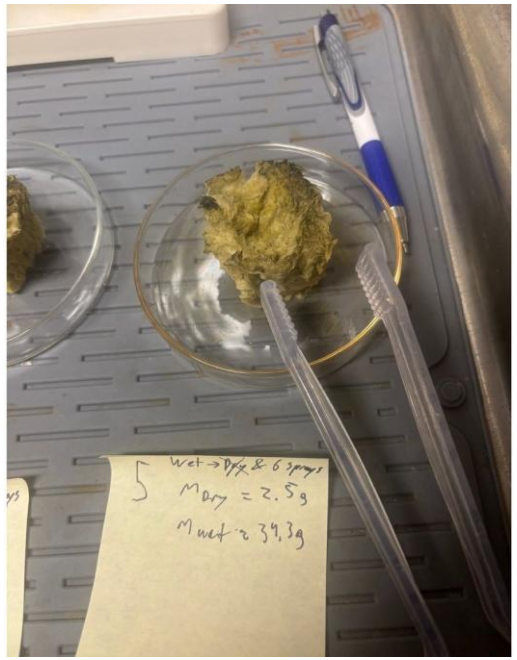
Seed priming extends SPT95 into the pre-harvest crop cycle.

Growing-media hygiene and reuse

CONTROLLED-ENVIRONMENT GROWING



Algae, 9 October



Abated, 16 October

Algae and mould control

SPT95 spraying abated algae and mould on rockwool growing media over the trial.

Reuse, not replace

Cleaned blocks can be reused, cutting media cost and glasshouse waste.

Low-temperature efficacy

Effective at 16 to 18°C and 25 to 30% relative humidity.

Independent rockwool trial, September to October 2025.

Algae control across pH

LABORATORY EVIDENCE

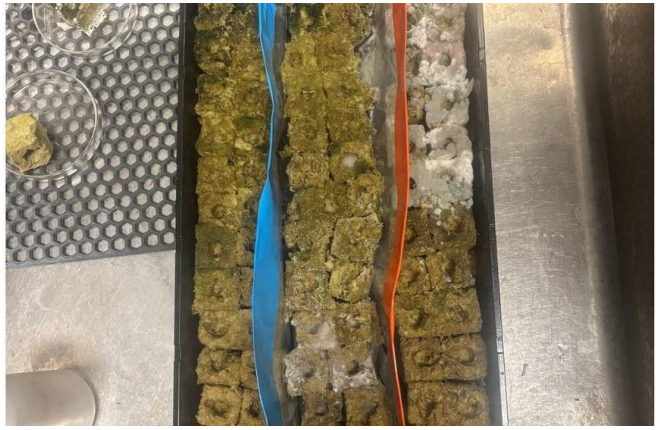
One seedling tray split into three pH sectors and tracked over four weeks: treated (~5.5), untreated (~7.5) and acidified (~3.0).



1 Day 0, 19 September



2 Day 13, 29 September



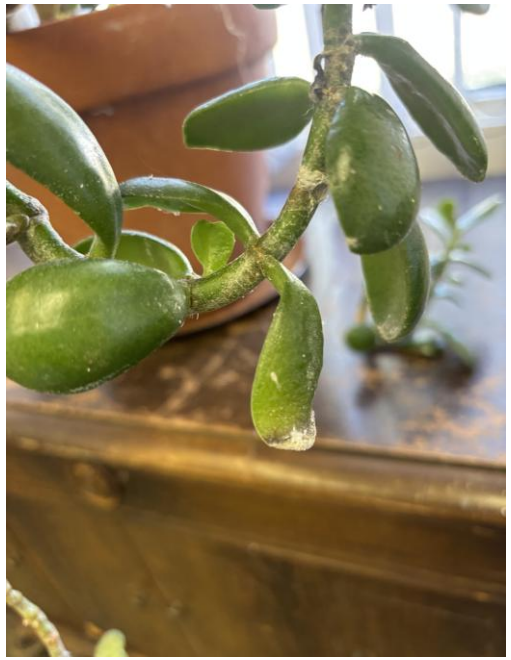
3 Day 27, 16 October

OBSERVED RESULT

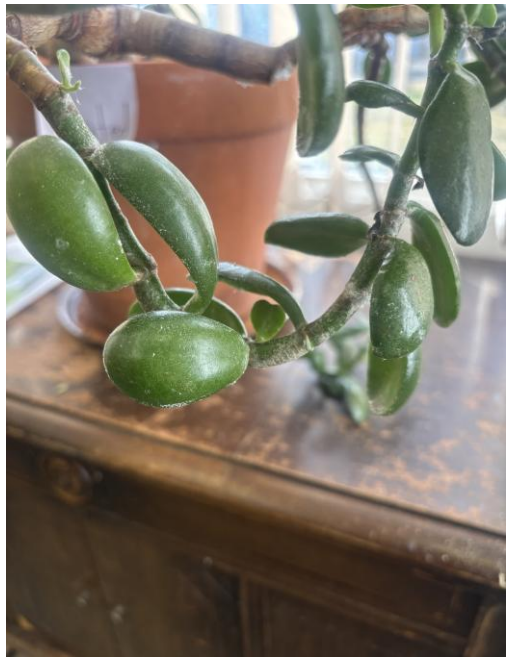
SPT95 was applied to the low-pH sector (~5.5), with untreated (~7.5) and acidified (~3.0) controls alongside. The trial demonstrates hypochlorous acid activity within its effective pH window; the acidified sector shows heavy salt precipitation.

Integrated pest management

CROP PROTECTION



Before, 17 September



After SPT95, 16 October

Visible clearance

Mealybug colonies cleared from treated jade-plant foliage over four weeks of SPT95 spraying.

Mode of action

Hypochlorous acid dissolves the waxy, cottony coating that shields mealybugs and mites, and disrupts egg viability.

IPM compatible

Residue-free and non-persistent, fitting an integrated crop-protection programme.

Independent plant trial, 17 September to 16 October 2025.

Grapes - 42 days at ambient

TRIAL: GRAPES

Grapes picked from the same bunch using sterile gloves, then stored at ambient temperature out of direct sunlight. Photos taken at 42 days.



1 Bagged dry



2 Immersed in water for 2 minutes, then bagged



3 Immersed in SPT95 for 2 minutes, then bagged

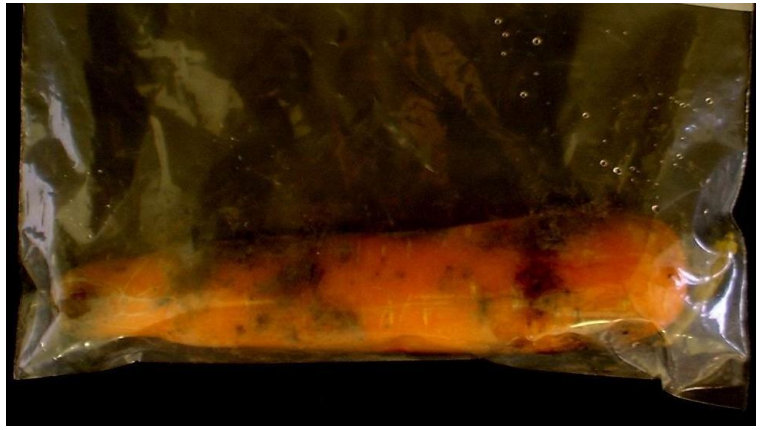
OBSERVED RESULT

After 42 days, SPT95-treated grapes retained skin integrity and colour, while the dry and water-only samples showed visible spoilage and microbial growth.

Carrots - 14 days at ambient

TRIAL: CARROTS

Carrots picked from the same bunch using sterile gloves, then stored at ambient temperature out of direct sunlight. Photos taken at 14 days.



1 Bagged dry



2 Immersed in sodium hypochlorite for 2 minutes, then bagged



3 Immersed in SPT95 for 2 minutes, then bagged

OBSERVED RESULT

SPT95-treated carrots remained firm with no visible bloom or surface degradation, outperforming both the dry control and the sodium hypochlorite wash.

Side-by-side supplier demonstration

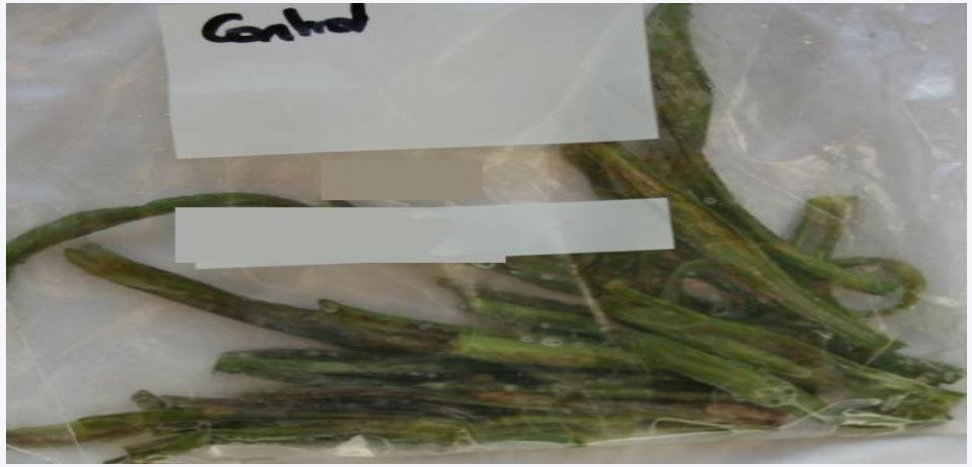
TRIAL: BEANS

Demonstration prepared for the 10 December 2010 supplier meeting.

SPT95



Water (control)



SPT95-treated beans retain colour, structure and turgidity over the trial period; the untreated control shows visible degradation.

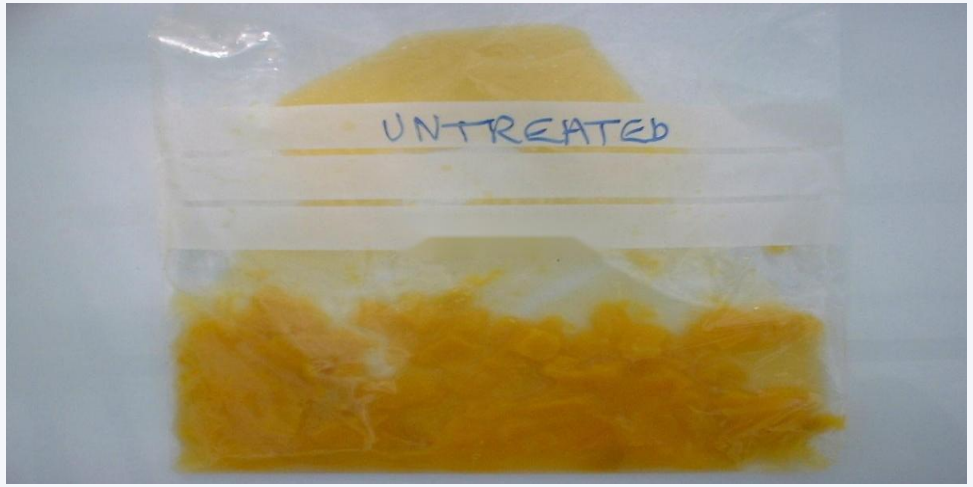
Diced peppers - 10 days at 10°C in the dark

TRIAL: PEPPERS

SPT95-treated



Untreated control



Storage conditions: 10 days, dark, 10°C. SPT95-treated dice held visual quality and integrity; the untreated control degraded visibly.

Cucumber - 10 days at ambient

TRIAL: CUCUMBER

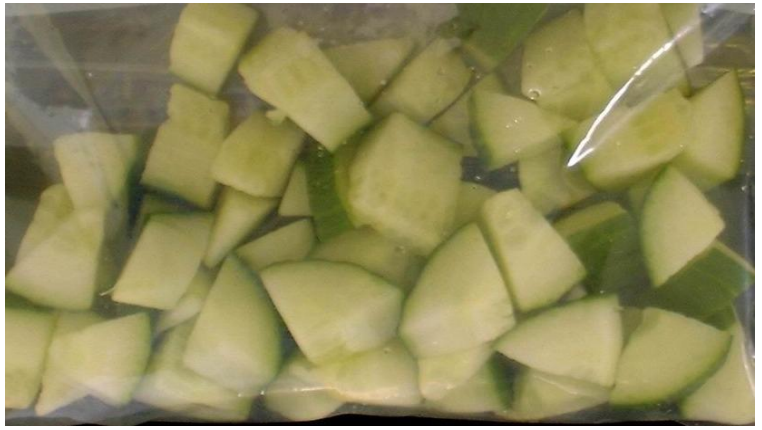
Stored at ambient temperature out of direct sunlight. Photos taken at 10 days.



1 Washed with water and bagged



2 Immersed in sodium hypochlorite and bagged



3 Immersed in SPT95 and bagged

OBSERVED RESULT

SPT95-treated cucumber held visible quality at 10 days, while the water and sodium hypochlorite samples showed surface softening and microbial bloom.

Cut flowers

ADJACENT APPLICATION

SPT95 added to vase water extends bloom life and reduces stem bacteria, with no impact on petal appearance or stem integrity.

Microbial control

Reduces bacterial load in vase water through the trial period.

Bloom longevity

Extends visible bloom life versus untreated controls.

Sensory neutral

No fragrance interference and no residue on petals.



From farm to florist

Cut flowers are an early high-margin entry channel for SPT95.

Fish processing

PROTEIN PROCESSING



SPT95 is applied through the cold chain to control surface microbial load without affecting taste, colour or texture.

Receipt and wash

Surface decontamination of fillets and whole fish on arrival.

Filleting and trim

Misted onto contact surfaces and equipment to reduce cross-contamination.

Pack and chill

Final rinse before packing extends shelf life with no taint.

Colour, structure and surface microbiology preserved

CASE: YELLOW FIN TUNA

SPT95-treated



Photographed after 11 days

Untreated control



Photographed after 11 days

Colour - Bloom preserved at 11 days

Microbial load - Reduced at wash and pack

Sensory - No taste, taint or residue

SPT95 ice

FORMAT



SPT95 frozen as ice delivers active hypochlorous as it melts. Ideal for display, transport and direct contact with whole fish and shellfish.

Active on melt

Steady release of hypochlorous as the ice melts.

Drop-in

Replaces conventional ice in existing display and transport formats.

Tasteless

No flavour or odour transfer to product.

Drinking water, processing and biosecurity

LIVESTOCK: POULTRY



Drinking water

Dosing drinking water reduces infection and removes the need for antibiotics. Significant reductions in mortality rates.

At processing

Treatment at processing eradicates salmonella and other harmful pathogens.

Biosecurity

Can be fogged for disease prevention between batches and to disinfect housing surfaces.

SAFETY

SPT95 safety profile

Independent toxicology and mutagenicity evidence

Low toxicity, no irritation, no sensitisation

WEIGHT OF EVIDENCE TOXICITY REPORT

> *Review of the data available in the public domain indicates that SPT95 at its stated formulation is likely to be of low toxicity and unlikely to be a skin or eye irritant or a skin sensitiser. This information is considered to be sufficiently accurate for human risk assessment and to conclude that SPT95 presents no risk to human health if used as intended.*

David G Coleman, BSc Hons
Team Leader, Toxicology - Cambridgeshire
May 2011

No evidence of mutagenic activity

MUTAGENICITY REPORT

> *No evidence of mutagenic activity was seen at any concentration of SPT95 in either mutation test. It is concluded that SPT95 showed no evidence of mutagenic activity in this bacterial system under the test conditions employed.*

Kenneth May, BSc CBiol MSB
Study Director, Research Centre - Eye, Suffolk
June 2010

SUPRA PERFECTA

CONTACT

Simon Blakebrough

Chief Sales Officer, Supra Perfecta Technologies Ltd

Email simon@spt-l.com

Web www.supraperfecta.com

ACTIVATED BY SPT95
THE PROVEN STANDARD