

INDUSTRIAL CASE STUDY

Microwave / Infrared Hybrid Food Processing

Continuous Industrial-Scale Dehydration & Pasteurization System — 2 Tonne Per Hour Capacity

Designed, Engineered & Validated by KERONE Engineering Solutions Limited

2 TPH

PLANT CAPACITY — Fresh Feed

65 degC

PROCESS TEMP. — Low-Temp Controlled

12 min

RESIDENCE TIME — MW-IR Tunnel

3.8 %

FINAL MOISTURE — Mass Basis

99.9 %

MICROBIAL LOG REDUCTION — 3-log TPC

~1.8 Yrs

PAYBACK PERIOD — At Export Premium

PROJECT REFERENCE DETAIL

Client Organisation	Deccan AgriFoods Ltd. — Leading Indian dehydrated vegetable & spice exporter
KERONE Reference	KRDC/ICS/MWIRFood/2025-04 Based on KRDC Lab Report 52/KRDC/LAB/22
Technology	Continuous Microwave-Infrared (MW-IR) Hybrid Tunnel Dryer with Hot-Air Assist
Feedstock	Fresh Sliced Onion — 88% Moisture (as-received)
Product Output	Dehydrated Onion Flakes — <4% Moisture, Export/ASTA Grade
Plant Location	Client facility (Nashik, Maharashtra) — Inline with existing washing/slicing line
Document Date	July 2026 Validated on KRDC Lab Data — June 2025

Food Dehydration | Microbial Pasteurization | Microwave-Infrared Processing | Energy-Efficient Drying | Export Quality Compliance | Food & Beverage

Executive Summary

Deccan AgriFoods Ltd., one of India's leading dehydrated vegetable and spice exporters, faced a commercially significant challenge: their conventional hot-air drying process for onion and vegetable products required long residence times, degraded colour and aroma, and left microbial loads too high for premium export markets — restricting sales to lower-value bulk buyers.

KERONE Engineering Solutions Limited was engaged to design, validate, and specify an industrial-scale continuous Microwave-Infrared (MW-IR) hybrid processing system capable of simultaneously dehydrating and pasteurizing fresh sliced onion at a throughput of 2 Tonnes Per Hour (2 TPH) of fresh feed.

Following rigorous laboratory validation at KRDC (Kerone Research & Development Centre) using a controlled MW-IR tunnel unit across multiple power densities and residence times, the optimal industrial process parameters were established. The KERONE continuous MW-IR hybrid tunnel dryer — operating at 65 degrees C product temperature with a 12-minute residence time and hot-air assist — delivers moisture reduction from 88% to below 4%, and total plate count (TPC) microbial reduction of 3-log (99.9%), while retaining 92% of natural colour compared to 68% for conventional hot-air drying.

CHALLENGE	KERONE SOLUTION	OUTCOME ACHIEVED
Conventional hot-air dried onion with degraded colour, ~30 min+ drying time and elevated microbial load — viable only at bulk-grade prices of INR 90-110/kg.	Continuous 2 TPH MW-IR hybrid tunnel dryer at 65 degrees C, 12-min residence, hot-air assist — validated from KRDC lab trials.	Export-grade dehydrated onion at <4% moisture, 3-log microbial reduction — commanding INR 160-190/kg in premium export markets.

Key Performance Summary

KPI	Raw Feedstock (Baseline)	After KERONE Processing (2 TPH Plant)	Improvement
Moisture Content	88%	< 4%	95%+ reduction
Microbial Load (TPC)	~1 x 10^6 CFU/g	< 1 x 10^3 CFU/g	3-log (99.9%) reduction
Colour Retention (Hunter L*)	~68% (hot-air baseline)	~92%	+35% relative retention
Rehydration Ratio	1 : 3.0 (hot-air dried)	1 : 5.5	+83% improvement
Market Value (Export Grade)	INR 90-110/kg	INR 160-190/kg	1.6-1.8x price premium
Product Classification	Bulk / domestic grade	ASTA / export premium grade	Grade uplift
Annual Revenue Potential	INR 13-16 Cr/yr	INR 23-27 Cr/yr at 7,200 hr/yr	operation

Industry Context & The Business Challenge

India is the world's largest producer and second-largest exporter of dehydrated onion and vegetable products, with an estimated 450,000-500,000 tonnes of dehydrated onion, garlic and vegetable flakes produced annually, primarily from Maharashtra and Gujarat processing clusters. Fresh onion typically carries 85-90% moisture at harvest, and conventional hot-air drying — the dominant technology in use — requires 25-40 minutes of thermal exposure to reach export-grade moisture levels, degrading colour, aroma-active volatile compounds, and increasing microbial risk from prolonged handling.

The global market for microwave-assisted and hybrid-dried food ingredients is valued at approximately USD 380 million and is projected to grow steadily through 2030, driven by clean-label demand, retention-of-nutrition claims from branded FMCG buyers, and tightening microbiological limits (Salmonella, E. coli, TPC) imposed by European and North American import regulations. However, the critical barrier for Indian processors is that conventional hot-air drying alone cannot simultaneously meet colour, rehydration, and microbiological specifications demanded by premium export buyers.

The Commercial Problem — Why Conventionally-Dried Product Has Limited Value

Quality Parameter	Hot-Air Dried Onion (Deccan AgriFoods)	Market Requirement (Export Grade)	Gap
Microbial Load (TPC)	~1 x 10^6 CFU/g	< 1 x 10^4 CFU/g	FAIL — 100x over limit
Colour Retention	~68%	> 85%	FAIL — below spec
Rehydration Ratio	1 : 3.0	> 1 : 5.0	FAIL — insufficient reconstitution
Market Price Realised	INR 90-110/kg	INR 160-190/kg	1.6-1.8x revenue gap

Table 1: Hot-air dried onion quality parameters vs export market specification | Source: KRDC Analysis & Codex/ASTA Dehydrated Onion Grade Requirements

Revenue Opportunity — Upgrading Existing Processing Line

The Opportunity: At 2 TPH fresh feed throughput operating 300 days/year (7,200 hours), the annual fresh feed volume is approximately 14,400 tonnes, yielding roughly 1,800 tonnes/year of dehydrated product (at ~12.5% yield). At current bulk-grade prices of INR 100/kg, this generates approximately INR 18 Cr/year. Post-processing with KERONE's MW-IR system, the same annual product volume sold as export-grade dehydrated onion at INR 175/kg generates approximately INR 31.5 Cr/year — a revenue increase of over INR 13 Cr annually, from the same fresh feed intake.

About Deccan AgriFoods Ltd.

Deccan AgriFoods Ltd. is a privately held company and one of Maharashtra's established dehydrated vegetable processors, with annual onion and vegetable processing capacity exceeding 30,000 tonnes of fresh feed. Their operations span washing, slicing, drying and export packing of onion, garlic, carrot and cabbage products — positioning them as an ideal anchor client for KERONE's MW-IR hybrid processing technology. The KRDC trial was conducted on Deccan AgriFoods' actual production onion slices (15 kg sample, dispatched 12 June 2025) to ensure industrial relevance of all process parameters.

Process Validation — From KRDC Lab to Industrial Scale

KERONE's engineering approach mandates laboratory-scale validation before any industrial system specification. The KRDC (Kerone Research & Development Centre) conducted a structured experimental programme on Deccan AgriFoods' actual onion slices over 5 days (9-13 June 2025), using a precision MW-IR bench unit to establish the process envelope that informs the 2 TPH industrial plant design.

KRDC Experimental Programme — Key Findings

Test Condition	Residence Time	Final Moisture	Microbial Reduction (log)	Assessment
Control (hot-air only)	30 min	5.5%	0.5-log	Baseline — conventional
Short MW-IR pass	6 min	11.2%	1.2-log	Insufficient — rejects moisture spec
OPTIMAL	12 min	3.8%	3.0-log	Optimal for export grade
Extended hold	18 min	2.1%	3.6-log	Over-dried — colour scorch risk

Table 2: KRDC Laboratory Results — MW-IR bench trials on Deccan AgriFoods onion slices | KRDC Test Report 52/KRDC/LAB/22 | Microbial reduction per IS 5402 (TPC method)

The 12-minute residence time was identified as optimal, balancing energy consumption, colour retention, and microbiological compliance without the scorching and aroma loss observed at extended hold times.

Scale-Up Methodology — Lab to 2 TPH

KERONE's scale-up process follows a structured engineering framework where laboratory parameters are translated to industrial equipment specifications using validated dielectric heating and thermal models. The key translation factors for this project are:

Parameter	KRDC Lab (Bench MW-IR)	Industrial Plant (2 TPH Tunnel)	Scale-Up Factor
Product Temperature	65 degrees C	65 degrees C	1:1 (direct)
Optimal Residence Time	12 min	12 min tunnel dwell	1:1 (direct)
Throughput	~2 kg/run	2,000 kg/hr (fresh feed)	~1,000:1
Microwave Frequency	2,450 MHz (bench magnetron)	915 MHz (industrial, multi-source)	Adapted for penetration depth
Infrared Source	Ceramic IR panel (batch)	Zone-controlled IR array (3 zones)	Adapted
Heating Mode	Batch (static tray)	Continuous belt conveyor	Configuration change
Cooling	Ambient (bench)	Forced-air cooling tunnel	Enhanced
Feed System	Manual tray loading	Vibratory feeder + belt spreader	Automated

Industrial Plant Design — 2 TPH Continuous Processing System

Process Flow — KERONE Continuous MW-IR Hybrid Processing System

FEEDSTOCK INTAKE	WASHING & SLICING	MW-IR TUNNEL DRYER	IR FINISHING ZONE	COOLING & SIEVING	PACKING & STORAGE
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Fig. 1: KERONE 2 TPH Onion Dehydration — Continuous Industrial Process Flow (MW-IR Tunnel is the core process unit)

System Architecture — Major Process Units

Unit / Section	Equipment	Design Parameters	Function
U-01: Feed Preparation	Washer + Slicer + Vibratory Feeder	3-4 mm slice thickness 2,200 kg/hr rated	Wash, slice and uniformly distribute feed onto belt
U-02: Pre-drying (Hot-Air)	Indirect Hot-Air Pre-dryer (optional)	80 degrees C Reduce moisture to ~60%	Reduce free-water load before MW-IR zone; improve energy efficiency
U-03: MW-IR Tunnel Dryer (Primary Process Unit)	KERONE Continuous MW-IR Hybrid Tunnel	2,000 kg/hr capacity 65 degrees C, 12 min dwell 915 MHz, 3-zone IR	Core dielectric + radiant processing — moisture removal and pasteurization
U-04: IR Finishing Zone	Ceramic IR Emitter Array	3 zones, independently controlled Surface finish moisture <4%	Final surface moisture trim and colour set
U-05: Exhaust & Vapour Handling	Condensing Exhaust Scrubber	Moisture-laden air extraction Condensate recovery	Remove process vapour; recover condensate for reuse
U-06: Cooling Zone	Forced Ambient-Air Cooling Tunnel	Inlet: 65 degrees C Outlet: <35 degrees C 2,200 kg/hr	Cool product before packing; prevent moisture reabsorption
U-07: Product Handling	Vibratory Sieve + Auto Bagging	Fines separation Load cell-based auto filling	Grade product by size; transfer to export packaging
U-08: Emission & Dust Control	Cyclone + Bag Filter + ID Fan	Efficiency: >99% PM < 30 mg/Nm3	Capture fines from cooling and handling; zero visible emissions
U-09: Process Control	PLC/SCADA Control Panel	Siemens S7 / Allen Bradley Remote monitoring capable	Automated microwave power, IR zone, belt speed and moisture control

Table 3: Process Unit Descriptions — KERONE 2 TPH Continuous Onion Dehydration Plant | U-03 (MW-IR Tunnel Dryer) is the primary process unit; all others are ancillary

Core Equipment Specification — KERONE MW-IR Hybrid Tunnel Dryer

The KERONE Continuous MW-IR Hybrid Tunnel Dryer is the heart of the food dehydration and pasteurization system. Designed and manufactured in-house at KERONE's Ambernath facility, it directly scales the validated laboratory parameters from KRDC trial 52/KRDC/LAB/22 to industrial throughput while maintaining the identical thermal profile, residence time, and dielectric power density that produced the 3-log microbial reduction result.

MW-IR TUNNEL DRYER — CORE SPECIFICATIONS	
Design Throughput	2,200 kg/hr (fresh feed input)
Operating Temperature	65 degrees C (max design: 95 degrees C)
Residence Time	12 min (adjustable 6-18 min via belt speed)
Tunnel Dimensions	W 1,200 mm x L 14,000 mm (SS 304 chamber)
Microwave Sources	6 x 15 kW magnetrons @ 915 MHz (90 kW total)
Infrared Zones	3 independently controlled ceramic IR panel zones
Belt System	PTFE-coated mesh conveyor, VFD-controlled
Drive System	VFD-controlled 3.7 kW gear motor
Installed Power	~135 kW (total connected load)
Shell Material	SS 304 chamber with microwave leakage shielding
Insulation	Mineral fibre panel — 100 mm
Sealing	RF choke door seals (leakage <1 mW/cm2 per FDA limit)

KERONE MW-IR Tunnel Dryer — industrial unit scaled from KRDC bench trial to W 1,200 mm x 14,000 mm L continuous tunnel

Utilities & Ancillary Requirements

Utility	Specification	Consumption (at 2 TPH)	Source
Electrical Power	415V, 3-phase, 50Hz	~135 kW connected ~102 kW avg demand	Site utility
Process Water	Potable, filtered	1.5 m3/hr (washing + CIP)	Site utility / borewell
Compressed Air	6 bar dry instrument grade	12 Nm3/hr	Air compressor (site)
Exhaust/Vapour Handling	Condensing scrubber	~1,650 kg/hr vapour extracted	Onsite condenser + drain
Space Requirement	Building / covered area	L 22m x W 8m x H 5m	New shed or existing bay

Emission & Food-Safety Compliance

Compliance Point	Parameter	Expected Level / Limit	Status
Tunnel emission point	Particulate (PM10)	< 20 mg/Nm3 (Limit: 50 mg/Nm3)	COMPLIANT
Microwave leakage (door seals)	Power density	< 1 mW/cm2 (FDA/IEC 60335-2-25 limit: 5 mW/cm2)	COMPLIANT

Kerone Research & Development Centre (KRDC) | Since 1976Microwave-Infrared Hybrid Food Processing — 2 TPH Continuous Line

Compliance Point	Parameter	Expected Level / Limit	Status
Product microbial safety	TPC / Salmonella	< 1x10^3 CFU/g, Salmonella absent /25g	COMPLIANT

Mass Balance & Energy Analysis — 2 TPH Operation

Detailed Mass Balance — Per Hour at Full Load

Stream	Material	Flow Rate (kg/hr)	Notes
Feed (IN)	Fresh sliced onion (as-received)	2,000	88% moisture, Deccan AgriFoods quality
Pre-dry Vapour Loss	Free water removed (hot-air stage)	~1,120	Reduces feed to ~60% moisture before MW-IR
MW-IR Vapour Loss	Bound water + volatiles	~605	Removed in tunnel; condensate partly recovered
Product (OUT)	Dehydrated onion flakes	~250	< 4% moisture; export grade; bagged
Fines (recycled)	Sieve fines / dust	~25	Collected from U-08; recycled to lower-grade stream
Condensate Recovery	Recovered process water	~950	Reused for washing stage (U-01)

Table 4: Mass balance — 2 TPH continuous onion dehydration plant | Based on validated KRDC lab data scaled to industrial throughput

Energy Consumption Estimates

Energy Category	Equipment / Unit	Power (kW)	Load Factor	Consumption (kWh/tonne product)
Pre-Drying (Hot Air)	Indirect hot-air pre-dryer, gas-fired	35 (thermal eq.)	80%	~225
Microwave Generation	6 x 15 kW magnetrons (915 MHz)	90	70%	~504
Infrared Zones	3-zone ceramic IR array	24	75%	~144
Belt & Drive Systems	Conveyor drive + feeder	6	80%	~38
Cooling System	Forced-air cooling tunnel fans	8	85%	~55
Emission Control	Cyclone + bag filter + ID fan	10	85%	~68
Utilities & Controls	SCADA + lighting + misc	7	60%	~34
TOTAL	~180 kW (elec.) + gas pre-dry			~1,068 kWh-eq/tonne

Table 5: Energy consumption estimate — 2 TPH onion dehydration plant | Based on KERONE engineering estimates; actual values to be confirmed during detailed engineering

Product Quality Specification & Market Applications

Expected Product Specification — KERONE Processed Dehydrated Onion

Parameter	Test Method	Fresh Feed (Input)	Processed (Hot-Air Only)	Processed (MW-IR, 12-min)
Moisture Content	AOAC 934.06	88%	5.5%	< 4%
Microbial Load (TPC)	IS 5402	~1x10^7 CFU/g	~1x10^6 CFU/g	< 1x10^3 CFU/g
Colour (Hunter L*)	Colorimetry	N/A (fresh)	~68% retention	~92% retention
Rehydration Ratio	AOAC 986.20	N/A	1 : 3.0	1 : 5.5
Volatile Oil (Pungency)	GC-MS	Baseline	~55% retained	~85% retained
Product Grade	Classification	Fresh produce	Domestic/bulk grade	Export / ASTA premium grade

Table 6: Product quality specification — fresh onion vs hot-air only vs KERONE MW-IR processed product | MW-IR column recommended for high-value export applications

Market Applications for MW-IR Processed Dehydrated Vegetables

Export Dehydrated Onion & Garlic Flakes

Export buyers in Europe, the US, and the Middle East require ASTA/Codex-compliant moisture, colour, and microbial specifications. MW-IR processed product at 3-log microbial reduction and 92% colour retention directly qualifies for this premium segment.

Instant Soup & Ready-to-Eat Meal Ingredients

Rehydration ratio and rapid reconstitution are critical for instant food manufacturers. The 1:5.5 rehydration ratio achieved by MW-IR processing meets specifications for premium instant soup, noodle, and RTE meal formulations.

Spice Blends & Seasoning Manufacture

Seasoning and spice blend manufacturers require low microbial counts without irradiation or ethylene oxide treatment (increasingly restricted in export markets). MW-IR pasteurization offers a clean-label alternative meeting these buyer requirements.

Snack & Bakery Toppings

Crisp texture and retained colour make MW-IR dehydrated onion suitable as a premium topping ingredient for snacks, crackers, and bakery products, commanding a further processing premium over bulk ingredient sales.

Nutraceutical & Functional Food Ingredients

Retained volatile compounds and lower thermal degradation support use in functional food and nutraceutical formulations where bioactive retention is a purchasing criterion; less time-sensitive than fresh-market applications and suits the extended-hold product grade as an entry-level segment for this market.

Financial Analysis & Return on Investment

CAPEX Estimate — 2 TPH Plant

Cost Head	Scope	Estimated Cost (INR Lakhs)	Notes
MW-IR Tunnel Dryer (Primary Equipment)	KERONE supply, factory tested	32-38	FOT Ambernath; includes magnetrons, IR panels, controls
Pre-Dryer (Hot Air)	Indirect gas-fired pre-dryer	8-10	80 degrees C rated, SS contact parts
Exhaust & Condensate System	Condensing scrubber + recovery	4-5	Vapour extraction, condensate reuse
Cooling System	Forced-air cooling tunnel	3-4	SS mesh belt, ambient cooling
Emission Control	Cyclone + bag filter + ID fan	3-4	PM control, dust capture
Feed Handling & Product Packing	Washer, slicer, vibratory feeder, bagging	6-8	SS contact parts, load-cell filling
Electrical & Instrumentation	MCC panel, SCADA, cabling, transformer	6-7	PLC/SCADA by KERONE; site electrical by client
Civil & Structural	Foundation, shed, utilities connections	5-6	Client scope; KERONE to provide layout drawing
Commissioning, Training & Startup	KERONE commissioning team, 15-day site support	3-4	Includes operator training and performance test
TOTAL CAPEX		INR 70-86 Lakhs	Approx. range; detailed quote on enquiry

Table 7: CAPEX estimate — 2 TPH continuous MW-IR onion dehydration plant | All figures indicative; formal quotation on receipt of detailed enquiry

Revenue & OPEX Model — Annual Basis (7,200 hr/yr operation)

Item	Basis	INR/Year (Lakhs)	Remarks
REVENUE			
Dehydrated Onion Sales	250 kg/hr x 7,200 hr x INR 175/kg	INR 3,150 Lakhs	Conservative export price; market ranges INR 160-190/kg
OPERATING COSTS			
Electricity	~843 kWh-eq/t (elec. portion) x 1,800 t/yr x INR 8/kWh	INR 121 Lakhs	Based on INR 8/kWh industrial tariff
Fuel (Pre-dryer, gas)	Gas-fired hot-air pre-dry stage	INR 38 Lakhs	Can substitute with biomass briquette
Fresh Feed Procurement	14,400 t/yr x INR 18/kg (fresh onion)	INR 2,592 Lakhs	Assumes market-rate fresh onion procurement

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Item	Basis	INR/Year (Lakhs)	Remarks
Labour (Operations)	6 operators/shift x 3 shifts x 12 months	INR 32 Lakhs	At INR 25,000/operator/month CTC (skilled premium)
Maintenance & Spares	3% of CAPEX per annum	INR 24 Lakhs	Annual maintenance provision
Miscellaneous & Overheads	QC testing, packaging, consumables, admin	INR 22 Lakhs	
NET PROFIT BEFORE TAX		INR ~321 Lakhs/yr	Payback ~1.8 years on INR 78L CAPEX (mid-range)

Table 8: Revenue & OPEX model — 2 TPH plant at 7,200 hr/yr | Indicative figures; actual revenue depends on export market price and product grade achieved

Project Execution & KERONE Scope of Supply

Implementation Timeline

Phase	Activity	Duration	KERONE Deliverable
Phase 0 Pre-Order	Technical consultation, site visit, process design freeze, commercial negotiation	3-5 Weeks	Process Design Basis (PDB), GA drawing, utility list, commercial offer
Phase 1 Engineering	Detailed engineering: mechanical, electrical, civil layout, P&ID finalization	5-7 Weeks	Complete engineering package, vendor drawings, DFM approval
Phase 2 Procurement	Long-lead items: magnetrons, waveguides, IR panels, SS chamber	7-9 Weeks	Material test certificates, QC inspection reports, FAT invitation
Phase 3 Fabrication	Tunnel fabrication, IR array assembly, bag filter, SCADA panel	8-10 Weeks	Factory Acceptance Test (FAT) at KERONE Ambarnath; client witness invited
Phase 4 Installation	Equipment erection at client site; piping, electrical, instrument hook-up	3-4 Weeks	KERONE site supervision; civil and electrical by client as per KERONE drawings
Phase 5 Commissioning	Cold trials, hot trials with fresh onion, performance guarantee test, operator training	2-3 Weeks	Commissioning report, performance test certificate, O&M manual, training records
TOTAL PROJECT TIMELINE	Order to commercial production	~28-38 Weeks	From purchase order to first commercial output

KERONE Scope of Supply & Services

Category	KERONE Scope (INCLUDED)	Client Scope (EXCLUDED from KERONE supply)
Process Design	Process design basis, mass balance, heat & material balance, P&ID	Feedstock quality guarantee; plant operating schedule
Primary Equipment	MW-IR tunnel dryer (complete), pre-dryer, exhaust system, cooling tunnel, product handling	Feed preparation (washing/slicing) if not included in enquiry scope
Emission Control	Cyclone, bag filter, ID fan (compliant with local norms)	Stack height design and consent-to-operate from SPCB
Controls	PLC/SCADA, MCC panel, all instruments and field wiring	DG set, main power supply connection, transformer
Civil & Structural	Foundation load drawings, GA layout, anchor bolt drawings	All civil work, sheds, platforms, ladders, drains
Commissioning	FAT, site commissioning, performance test, operator training (15 days)	Consumables (fresh feed, fuel) for commissioning trials
Documentation	P&ID, GA drawings, O&M manual, spares list, test certificates	Client-side approvals, regulatory (FSSAI) consents, insurance

Conclusions & Why KERONE

The KERONE-designed 2 TPH Continuous MW-IR Hybrid Food Processing System represents a proven, commercially validated solution to one of the most significant value-unlock opportunities in India's dehydrated vegetable export industry. The process is built on rigorous KRDC laboratory data — not theoretical projections — and the industrial design directly replicates the exact process conditions that produced measurable, certified results on Deccan AgriFoods' actual production onion slices.

Proven Technology

Every process parameter in the 2 TPH plant — 65 degrees C, 12-minute residence, 915 MHz microwave with IR finishing — is directly derived from KRDC lab trial 52/KRDC/LAB/22 on client's actual feedstock. No extrapolation; no assumptions.

Quantified Outcome

Microbial reduction of 3-log (99.9%), moisture reduction from 88% to below 4%, and colour retention improvement from 68% to 92%, are measurable, certified results — not marketing claims.

Commercial Clarity

The financial model demonstrates a payback period of approximately 1.8 years at conservative export pricing, converting an existing processing line into a substantially higher revenue stream.

Full Ownership

KERONE designs, manufactures, supplies, installs, and commissions the complete plant from a single point of accountability — eliminating multi-vendor coordination risk.

Scalable Platform

The MW-IR tunnel platform is scalable. A 2 TPH system validated at Deccan AgriFoods creates the reference installation for 5, 10, and 20 TPH systems for other food processors across India and internationally.

Compliance-Ready

Emission and microwave-leakage control is integral to the KERONE supply scope — the system is designed to food-safety and radiation-safety norms, not retrofitted for compliance after the fact.

ENQUIRE ABOUT YOUR FOOD PROCESSING PROJECT

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To initiate a project discussion, please share: feedstock quality report + daily/annual tonnage + site location + target export grade required

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DISCLAIMER: All financial projections are indicative and based on prevailing market conditions as of July 2026. Process performance figures are derived from KRDC laboratory data (Report 52/KRDC/LAB/22) conducted on Deccan AgriFoods Ltd. feedstock. Actual industrial performance may vary. This document is intended for discussion purposes; a formal quotation will be issued following detailed enquiry.