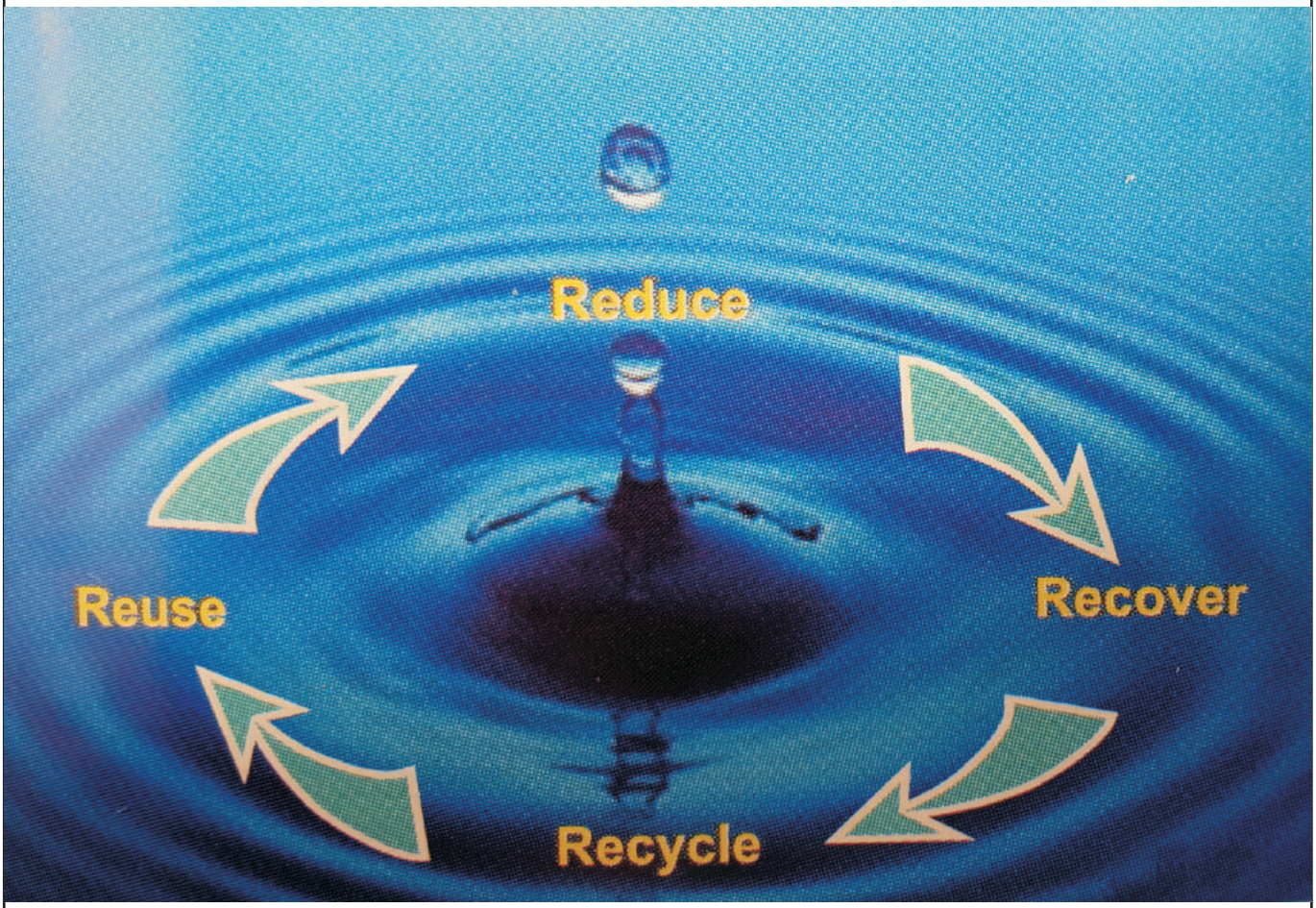
G2C

Batch Treatment Plant
ETP/STP



ADVANCED OXIDATION TECHNOLOGY

MAKE IN INDIA

Grey *to* Crystal

No. 48, 2nd Floor, 1st Cross, Neharunagar, Sheshadripuram,
Bangalore - 560020, Karnataka, Republic of India
E-mail : info@greytocrystal.com, grey2crystal@gmail.com
Mob : +91 98805 13930 Web : www.greytocrystal.com

Greetings from Grey to Crystal , Bengaluru, India.

We would like to introduce an emerging and unique "MADE IN INDIA" technology for application in treatment of wastewater like sewage and industrial effluents from diverse industries — the need of the hour all these times.

ADVANCED OXIDATION TECHNOLOGY — vetted, assessed, validated and certified by the prestigious INDIAN INSTITUTE OF SCIENCES SCIENTIST.

Advanced Oxidation Technology is technically defined as the losing o the giving up of an electron. It can involve very complex reactions between molecules and the oxidizers that are produced. Oxidation is an excellent way to destroy organics such as odors, viruses, bacteria, VOC"s and mold. Some oxidizers are classified as "friendly", which means when these oxiders react they revert to water, hydrogen or oxygen that's called CrystaOxy. Friendly oxidizers are always oxygen based. They include hydroxyl radicals, low level ozone, hydrogen peroxide and oxygen. Hydroxyl radicals are almost theoretical in that they are so reactive that they are created and decomposed almost instantaneously.

We are the pioneers in Batch Treatment Plant from 10 KL to 200 KL Plug & Play Plants, it consumes less space and less power consumption and generate less sludge.

We treat rogue effluent from industries like petroleum, slaughter houses, textiles, ordnance, organic and inorganic factory and domestic sewage providing relief for reuses or safe discharge.

We feel that if industrial effluents are recycled and reused we could SAVE GROUND WATER (A gift by GOD) for humanity.

Grey to Crystal introduces CrystaOxy an environmental friendly heterogeneous liquid design to treat organic, inorganic and heavy metal contamination in wastewater.

It generates exothermic reactions, Ions such as hydro-peroxide, super oxide Ions and Ozonide ions.

Free radical the most important being hydroxide catalyzes the recombine the reaction primarily to form ozone. CrystaOxy is engineered with a unique

formulation after decontaminating and disinfecting it reverts back into water and Oxygen. Nontoxic, no odour, no fumes, no residues.

Our Innovation CrystaOxy is complex formulation in liquid form works on pathogens, germs by a process known as Cellular Lysis. In the oxidant process Crystaoxy reptures the cellular membrane of micro organism and disperse the bacterial cytoplas into solution, this making reactivation impossible, this process takes place in 2 to 3 seconds.

HYDROXYL RADICAL:- OH is a neutral structure of hydroxide ion (OH-), Hydroxyl radical are extremely reactive, react to pathogens, germs, bacterial contaminated media by two ways they first kill these by an oxidative degradation reaction, secondly they blew up/blast the dead biomas, beyond reproduction level and converting into water and oxygen. Hydroxyl radicals are oxidation substance — they attack any particle in their surrounding in order to stabilize their unpaired electron pattern.

Hydroxyl radicals are capable of breakaing double bonds (C=C, N=N) and degrade hydrocarbons. CrystaOxy break the double bond, that form fatty acids, chain which create fat oil and grease (FOG), It avoids clog drains and Pipelines.

EXOTHERMIC:- The expression means a procedure of reaction that liberates energy/ power from the formulation generally in the form of high temperature.

ELECTROTHERMIC:- is a reaction upon triggering the heavy metal in wastewater to reaction their Zeta Potential to generate electrical conductivity charge. Due to this reaction the biological activity is nullified to a large extent.

PHOTO-THERMIC:- The term 'Photo' comes from 'Photon' which is light, is a reaction which harvest sunlight like electro magnetic radiation, resulting in thermal energy or heat which enables to enhance the above two reactions leading to generating to more hydroxyl radicals.

CATALYSIT :- Materials typically used is very small amounts comparative to reactants, which alter and boost the rate of reaction. Some contaminants like zink, copper, lead, Iron, are catelysits themselves Heterogeneous Catalysts do not hamper with reactions.

CrastaOxy:- Oxidizses the pollutants in succession of exothermic chemical

reaction. The reaction between and Oxidant and a heavy metal catalyst generates high heat and conductivity to oxidize contaminants.

REACTION SUMMARY:- Formulated Oxidant +_ Contaminant + Catalysts (ineffluent) — Generate free radicals for reactions. Less harmfull contaminants + H2O + Co2 + Salts.

TREATMENT PHILOSOPHY:- Advanced Oxidation Technology process is designed to Oxidize contaminants at source — by incineration, reaction with addition of liquid CrystaOxy, whereby most contaminants organic, inorganic and heavy metals in effluents are oxidized rendering less sludge. The process is quicker, simple and easily adaptable to existing systems as major advantage. Saves on time, energy conservation and reality treatment, either for reuse or safe discharge. Existing plants could be upgraded to handle higher volumes with mere modification.

Advantages of our Technology :

- ★ Maximum reduction of BOD & COD
- ★ Increase in DO
- ★ Ph Optimization
- ★ Reduction in sludge
- ★ Odor removal
- ★ Oxidation of organic, inorganic, heavy metals
- ★ Arrest algae growth
- ★ Sustain release with rapid action
- ★ Recovery of the treated water is more than 93%
- ★ Single level treatment
- ★ Pre treated effluent fed RO System, it increases life of membrane
- ★ Reduces RO rejects
- ★ Existing plant can be modified to our technology

TREATMENT PROCESS :- Raw effluent should be pumped to our reactor from equalization Tank.

- Add CrystaOxy sufficient quantity and stirr it for 5 min.
- Add PAC/Alum/Lime/Caustic dozed to stabilize the pH with geared motor stirrer on and allow 5 min. for flocculation and separation of solids from the liquid.
- Polyelectrolyte was dozed to coagulate the separated solids. The crystaOxy treated, un-oxidized solids precipitated and settled at the hopper bottom of our batch treatment plant.
- The supernatant treated water was process through sand, special media, carbon and micron filtration system. Samples from the each batch will be provided for analysis.
- Whatever sludge generated will go to sludge bed.
- The wet sludge approximately between 0.8 to 1.8 Tons per 100 KL, depends on effluents & pH correction.

ADVANCED OXIDATION TECHNOLOGY CASE STUDY — RESULTS- DIVERSE INDUSTRIES.

Grey to Crystal is a research and development company based in Bangalore in India; Offer solution to treat wastewater — effluent from diverse industries, wherein we pioneer a unique and emerging treatment process based on ADVANCED OXIDATION TECHNOLOGY.

Technologies are continuously evolving, innovative technologies change methods to improve/ better treatment quality for reuses and or safer discharge of treated wastewater with advantages, thereby SAVING GROUND WATER for drinking purposes to larger section of society.

Results of case studies — (WITHOUT ULTRA FILTRATION — RO SYSTEM)

PETROCHEMICALS-

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
pH	7.42	7.43	
TSS	104	6	95%
OIL - GREASE	172	<1	99%
TURBIDITY	110	5	95%

TEXTILE-

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
COD	5889	1190	79%
BOD	NA	NA	NA
TSS	294	29	95%
TDS	13060	6390	48%
CONDUCTIVITY	20274	10025	55%

PAPER MILLS -

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
COD	754	73.4	90%
TSS	232	0.8	99%
TDS	1650	1384	15%
CONDUCTIVITY	2630	2210	18%

COOLING TOWER BLOWDOWN

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
COD	303	41	85%
BOD	56	5	90%
TSS	48	8	85%
TDS	1644	1336	15%
CHLORIDES	578	482	15%
CONDUCTIVITY	2375	2100	12%

MICRO BREWERY

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
COD	3078	301	90%
BOD	2460	190	92%
TSS	1040	28	98%
TDS	1860	1504	14%
A. NITROGEN	15.6	9.7	50%

FORGING INDUSTRY

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
COD	2357	57.9	97%
BOD			
TSS	916	07	99%
TSS	1296	788	40%
OIL - GREASE	507	<1	99%
Fe	6.2	00.1	99%

MICRO BREWERY

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
pH			
COD	560	85	85%
BOD	220	12	95%

AUTOMOBILE

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
COD	327	50	85%
BOD	144	12	92%
TSS	34	08	90%
TDS	684	556	18%

COIR

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
COD	272	31	88%
BOD	72	02	99%
TSS	64	06	99%
TDS	1714	1318	22%

LAUNDRY

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
COD	54.5	58	91%
BOD	228	20	92%
TSS	50	10	80%
TDS	4190	3952	6%

PRINTED CIRCUIT BOARD -

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
COD	149	<1	99%
BOD	24	06	99%
TDS	2774	2610	6%
COPPER	4.38	0.5	99%

CHOCOLATE INDUSTRY

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
COD	14756	5007	66%
BOD	196	20	90%
TDS	2400	1660	33%
OIL GRESE	1624	<1	100%

LATEX INDUSTRY

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
COD	1326	33	99%
BOD	120	26	79%
TSS	376	10	98%

SLAUGHTER HOUSE

PARAMETER	RAW IN LET VALUE	TREATED OUTLET VALUE	% IN REDUCTION
pH	6.9	7.3	96%
COD	105	29	97%
BOD	485	12	94%
TSS	234	11	9%
TDS	2952	2600	

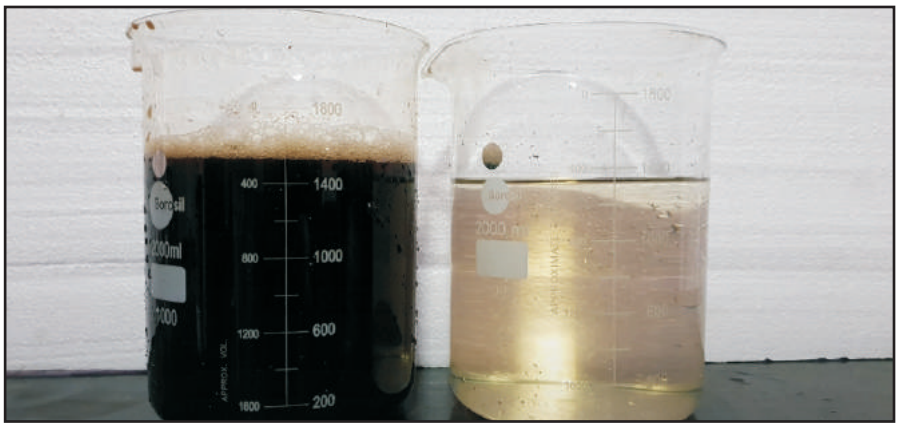
FOOT NOTE:

- Daily parameters at inlet vary hence — indicative.
- TDS values are at inlet.
- Actual value of TDS are to be taken into account is after salts for pH correction addition — Hence the treated result values for TDS will be at a higher %.
- Chemicals like lime/Alum/PAC/Caustic + Polyelectrolyte need to be used for pH correction .
- CrystaOxy, CrystaAir are decontaminators/ Disinfectant and not decoloring Agents.
- Correction/ Stabilisation/polishing the treated water before filtration by media .

Raw Effluent and CrystaOxy treated





MAKE IN INDIA

Grey *to* Crystal

No. 48, 2nd Floor, 1st Cross, Neharunagar, Sheshadripuram,
Bangalore - 560020, Karnataka, Republic of India
E-mail : info@greytocrystal.com, grey2crystal@gmail.com
Mob : +91 98805 13930 Web : www.greytocrystal.com

G2C
BATCH TREATMENT PLANT

CrystaAir

Solution for Air & Surface Contaminations
Sanitizer / Disinfector
by
Advanced Oxidation process

No Alcohol / No Chloride