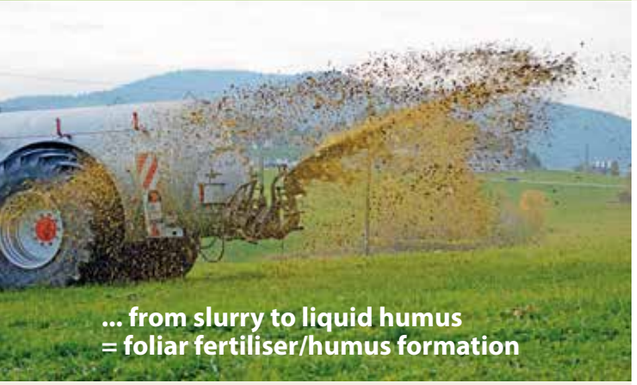
Crystal analysis

Vital processes in a natural environment

Spagyric crystalline images represent a reliable visualisation of the quality of the vital energy. It is possible to reproduce these pictures at any time, and they clearly convey the differences between disorder and order:



... from slurry to liquid humus
= foliar fertiliser/humus formation

Control

Untreated slurry

- right-angled and parallel structures indicate a hardened situation
- i. e. a low level of fermentation and organic nitrogen bonding.

with PLOCHER

with plocher liquid humus

- Fine-structured, **naturalistic** crystals focussed in the centre of the picture, expressing a good "digestion" of the organic components.
- Large, rough crystals are surrounded by fine, moss-like crystals.

Pictures: 200 x enlargement

Source: WasserStudio Bodensee,
Dr. med. vet. Wilhelm Höfer, Überlingen 08.04.2019

Further significant analyses concerning the effect of plocher liquid humus:

1. Plant tolerance
The laboratory cress test clearly demonstrates the very good plant tolerance of liquid humus:

Dilution level 1: 10	DL 1: 30	DL 1: 100
2	**3**	**3**

The **growth** of the cress during the vegetation trial is to be evaluated as follows:
0 = no growth, 1 = poor growth,
2 = normal growth, 3 = good growth

2. Humus formation
Liquid humus C/N proportion = **32**
Evaluation of the measuring result:
> 20: Permanent humus, this makes an important contribution to sustainable humus formation and determines the fertility of the soil!
< 20: Nutritive humus, is broken down quickly in the soil

3. Low gas losses
pH-value: **6.78**
Devolatilising potential: **17.94 ppm**
Evaluation:
Low gas losses - see average value:
Median value of all measuring values to date: 32.44 ppm
(Valid 28.04.2020, Hessian State Laboratory)

Plus observation at the farm:

Grass grows on the droppings from the manure slider - a simple indication of the aerobic decomposition milieu
created by plocher liquid humus and its growth promoting properties!

New: PLOCHER Study Series on the topic of LIQUID HUMUS
Please request your free copy or download as a PDF from www.plocher.com

Scientific services

2016 German Bundestag - WD 8 - 3000 - 079/16

Effects of the use of nitrification and urease inhibitors in agriculture

"Due to the insufficient data basis, the use of nitrification inhibitors cannot currently be evaluated as a sufficiently reliable climate protection measure in German agriculture"
In one publication, a German group of scientists (M. Scheurer et al. 2016) investigates the question of the occurrence and retention of nitrification and urease inhibitors in water. In this context 1H-1,2,4-triazole and dicyandiamide (DCD) were detected for the first time in German surface water. DCD was ubiquitously present (omnipresent) in German surface waters. Laboratory trials showed that both 1H-1,2,4-triazole and DCD are not easily biologically degradable.
Various studies draw attention to this fact: furthermore, it is important to realise that temperature, time of the entry, quantity, rainfall and soil composition influence the efficiency of the inhibitors and the duration of the effect observed.

Reliable, sustainable and profitable - the natural nitrogen stabilisation with PLOCHER

The PLOCHER system completely meets the requirements of fertiliser regulations:

§ FERTILISER REGULATIONS - are met ✓

Since 1980 slurry, manure and fermentation residues, which have been aerobically treated respectively with PLOCHER slurry, compost and digestate additives (= natural nitrogen stabilisation), right from the beginning, in other words already in the animal housing, have met the requirements of comparatively lower ammonia emissions as well as the requirement relating to ground water and water protection!

www.plocher-agrar.de
www.fluessighumus.de
www.humusboden.de

Geprüft durch ECOCERT INPUTS

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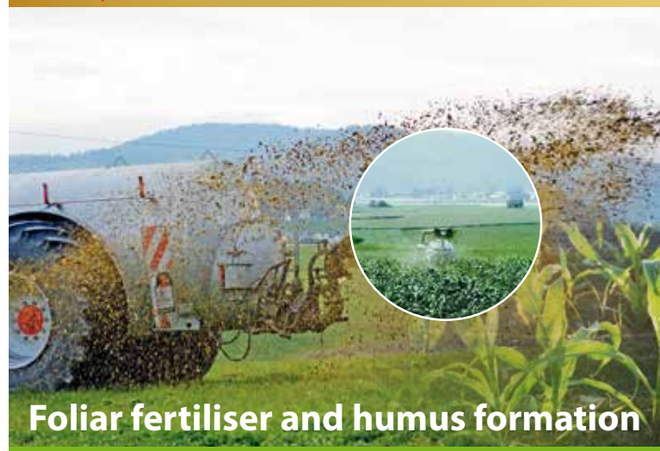
40 YEARS 1980-2020 PLOCHER®

LIQUID HUMUS

starts at source



Foliar fertiliser and humus formation

www.fluessighumus.de

BENEFITS CLEARLY EXCEED COSTS

Slurry additive and digestate activator

PLOCHER®

Question:
Is slurry or manure
treated with plocher liquid humus
suitable for biogas plants?

Answer:
Yes, for the following reasons it meets optimum requirements for this purpose

- homogeneous
- pH neutral
- nutrient-rich with enzymes and trace elements
- improved formation of acetic acid

plocher liquid humus

Slurry admixture for all types of animals.
Aerobic treatment (based on decomposition) of slurry and liquid manure to form valuable foliar fertiliser and humus.

- **Hygiene:**
  - Decomposition (aerobic) instead of putrefaction (anaerobic)
    Decomposition prevents the development of pathogenic germs, e.g. salmonella
  - Improved climate in the animal housing, fewer flies
- **Homogenisation:**
  - Saves stirring costs, no caustic burns even in sunny weather
- **Stabilising nitrogen:**
  Nutrients are preserved and remain available to the plants, ideal foliar fertiliser, humus development

Slurry becomes liquid humus = protection for soil, crops, water and climate

First application:
Add 1.5 kg i.e. l per 100 m³ slurry, diluted with plenty of water to the liquid part of the slurry.
Regular application:
4 ml i.e. 5 g per LU on a weekly basis.

Carrier material: Calcium carbonate:
Article no. af 1641, unit: 2 kg
Article no. af 1651, unit: 10 kg
Carrier material: Bio-molasses (me)
Article no. af 1661, unit: 2 litres
Article no. af 1671, unit: 10 liters

§ FERTILISER REGULATIONS - are met ✓

... Farewell to slurry flora!

Aerobic treatment of cattle slurry to LIQUID HUMUS!

PLOCHER animal housing	CONTROL animal housing
NH_3: min. 2 ppm max. 9 ppm	NH_3: min. 7 ppm max. 19 ppm
No stirring required!	Slurry needs to be stirred 2x per week: Peak figure during stirring: NH_3: 37 ppm !

Comparison of ammonia values (NH3):
The measurements were carried out directly over the slats at 10 different spots throughout the entire animal housing. The measurement device was developed for vets, agricultural authorities and companies.

Examples for use of PLOCHER slurry additive at source in the animal housing:

We spread plocher liquid humus (4 ml/LU/week) using a cold fogger and are thrilled about the result: "A great climate in the animal housing, **top quality aerobic slurry** and improved fattening performance all speak for themselves!"
Rainer Franz, pig farm in Mulfingen - Ochsental.

Further examples of usage:

We also recommend plocher liquid humus for treatment of animal bedding in combination with slatted flooring/slider and bedding material, which are fed into a biogas plant.

plocher digestate activator

Aerobic treatment of digestate from the biogas plant
Recommended dosage: 1.5 – 2 litres/100 m³ per week.
When used the first time with floating layers, add to the liquid part of the digestate. Floating digestate and sinking layers will disperse over time.
Carrier material: Bio-molasses (me)
Article no. ag 1271, unit: 10 litres

Why aerobic treatment of digestate?
The root zone can be compared to our intestinal villi. This makes it easy to understand why no anaerobic digestate/putrefactive products should be introduced into this area.

Digestate trial with cress

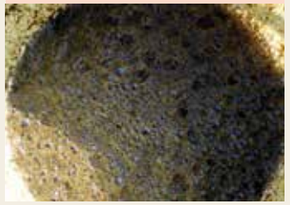
Digestate with PLOCHER composted since 02.02.14 in one compost heap	Digestate control After six months
27/04/2014	
cress starts to germinate	*seeds do not germinate*
04/05/2014	
cress fully developed	*no recognisable development*

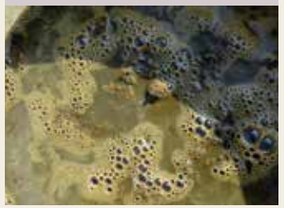
Use slurry and digestate ECONOMICALLY!

3500 m³ digestate depot

Biogas plant Wollbrandshausen-Krebeck e.G. – 1.76 MW
Project support by PLOCHER distribution assistant Ingrid Rinkleff.

Digestate with PLOCHER treatment on 05.01.12 + 06.01.12 with a total of 50 l **plocher digestate activator me.**	Digestate control untreated





23/03/2012

Significant differences:

- Homogeneous – solid matter completely metabolised
- Reduced stirring effort
- Higher gas yield
- Odour reduction

The farm's own manure must make a valuable contribution to a nature-friendly circular economy.